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SAMUEL CLEMENTS HENRY.

Samuel C. Henry, chairman of the House of Delegates, American Pharmaceutical Association, is a native of Virginia and, we are informed, a lineal descendant of Patrick Henry. Undoubtedly the subject of this rather incomplete sketch possesses characteristics that were predominant in his antecedant and marked him for lasting fame. While the occasion may not arise which will imprint the memory of Samuel C. Henry on permanent historical records, his activities in organization and legislative matters pertaining to the retail drug business have been eminently successful and helpful, and he will measure up to the greater opportunities which have come to him by his election as Secretary of the National Association of Retail Druggists, of which organization he was president in 1915. His counsel and leadership in shaping national legislation has been and is a valuable asset of that body. He is deliberate in speech, logical in reasoning and measures his statements with assurance of being right.

Mr. Henry was trained as pharmacist in the William S. Thompson pharmacy of Washington, D. C., from where he came to Philadelphia and soon thereafter engaged in the retail drug business on his own account, and later established a second store. He took an active interest in the local retail druggists' association and exhibited high qualities of an efficient organizer, and for a time was president of that association.

His capabilities and comprehension of legislative needs, related to the drug business, were soon recognized, and in such capacity he has labored efficiently for many years in behalf of the local, state and national associations, as member of legislative committees and as chairman.

The approval of his work and his uniform courtesy made him president of the Pennsylvania Pharmaceutical Association, which office he filled with credit to himself and satisfaction to the members. For a number of years he served on the board of trustees of the Philadelphia College of Pharmacy.

In 1909, he joined the American Pharmaceutical Association and, until the time of his leaving Philadelphia, contributed largely to the success of the Local Branch. He did not neglect his affiliation when it became necessary to leave his adopted city, but at once joined enthusiastically with the Chicago members, who welcomed his coming among them. He occupied various official positions in the

Philadelphia Branch and for one year that of presiding officer. The esteem in which he is held was very evident prior to his departure for Chicago and, both the latter body and the Philadelphia Association of Retail Druggists gave public expression thereof in largely attended special meetings in his honor, on which occasions their sincere regard was voiced by speakers at the banquet tables.

Mr. Henry is always found among the workers, and, therefore, aside from his professional duties, he considers that his Church should have his active support and so in this connection he also has been recognized as a faithful member and zealous officer.

Intensely interested in legislative matters, it is not surprising that he should and did take part in political affairs, and was several times honored with the nomination for the Pennsylvania Legislature. Though his campaigns were unsuccessful from one point of view, that of not being elected, his record is clean and his failure in securing the election was largely due to his unwillingness to lend himself to questionable methods and of being the candidate of the minority party in his district.

While Mr. Henry's activities have most largely been concerned with the National Association of Retail Druggists he has not neglected the American Pharmaceutical Association. Last year he served as vice-chairman of the House of Delegates and on several important Association committees; this year, at the Chicago meeting, he will preside over the sessions of the House of Delegates.[1]

E. G. E.

CONSERVATION COÖPERATION BETWEEN PHARMACISTS AND PHYSICIANS.

The best reason for the assumption of the possibility and practicability of co-operation for conservation between pharmacists rests upon the fact that the medical profession of our country has outstripped any single body of citizens in its devotion to our country's cause in the present war. Medical practices developed by years of application, lucrative incomes which they yielded, near realization of ambitions for professional advancement, fond domestic and social ties, assurance of comfortable futures—all were relinquished promptly and unselfishly by thousands of our medical practitioners when the call came and they placed their abilities and energies unreservedly at the disposal of our Government. To make such acknowledgment of the splendidly patriotic attitude of our medical men, in and out of the service, is directly related to the subject of "conservation of drugs and medicines," and were it pure digression, it would still be entirely pardonable because one would have to be churlish, indeed, to have enjoyed the cordial friendship of many of these manly men and fail to fully and freely commend the fine quality of their citizenship.—*Adapted from a paper by Ambrose Hunsberger on "Practical Drug Conservation," printed in this issue of the* JOURNAL.

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[1] Minutes of the House of Delegates, Indianapolis meeting, will be printed in May issue of the JOURNAL.

EDITORIAL

E. G. EBERLE, Editor 253 Bourse Bldg., PHILADELPHIA

"THE ESTABLISHMENT OF A PHARMACEUTICAL CORPS"—A TRUMPET CALL TO DUTY!

> "And now comes the trumpet call to duty: the fearful, piercing cry of humanity in agony. No longer can we look on and shrug our shoulders and say 'This problem is not ours.' Our own flesh and blood is dedicated to the struggle and will pour out its rich wine of life and youth and of hope."
>
> "Before our eyes millions are giving their all: their last measure of devotion; their last drop of blood. The world lies bleeding before us: a world thus far, that has touched us only as one touches the hem of a garment. But now no longer. Today, at desk, in kitchen and at bedside the call is here and we are facing the mud, the carrion, the terror, the infinite weariness and suffering of the battlefield. Our faces are turned toward those fields of France that are one vast Calvary."—Part of an editorial in the *Ladies Home Journal* for November 1917.

AMERICAN pharmacists desire to enlist in the service for humanity in a capacity wherein they can work most helpfully, but this is impossible under present conditions when there is no pharmaceutical organization in the Army. Without such provision the enlisted pharmacist can not serve efficiently, for his experience counts for little and his knowledge of the science and art of his profession has even less value, and still in civil life pharmacy is regarded as "the right arm of medicine."

The U. S. Government as well as the medical profession accept of the standards for materia medica prepared by pharmacists. In an editorial of a recent issue of the *Pharmaceutical Journal and Pharmacist* (Great Britain) these lines occur: "The United States has been uncommonly fortunate in the possession of a remarkable array of eminent pharmacists who have rendered signal service to the science of pharmacy and to the cause of pharmaceutical education and progress."

Every nation engaged in the War except England and the United States has pharmaceutical corps as part of their Army organization, and England has recently commissioned twenty-one pharmacists—a forward step prompted by the efficient service of the Australasian Pharmaceutical Corps.

That pharmaceutical service is not of a high standard in all of our camps at present is known to pharmacists in the cities near to these camps and therefore the fact need not be further impressed on our readers, most of whom have authentic information thereon from dependable sources. That the service in some of these dispensaries would not be lawful in civil life is also beyond dispute. A sworn statement recites that a dispenser in one of these camps was formerly a bartender, another a cigar salesman and another a bookkeeper. It might be contended that no pharmacist was available and still there are verified statements that there were graduate pharmacists in a camp where inexperienced men dispensed or directed the graduate pharmacist how he should dispense. Such testimony tends to sub-

stantiate the truth of reports relative to dispensing errors of antiseptic tablets of bichloride of mercury for phenacetin and normal salt solution tablets, morphine tablets for calomel tablets, and we have seen tablets of mercuric chloride from one of the important camps that were stocked in tin containers! When the people realize existing conditions they will resent such platitudes as "The needs of the soldiers can be provided for satisfactorily under the present organization." A preceding Surgeon-General openly stated that this work (dispensary) "*was one particular in which the Medical Department is unprepared to fulfill its responsibility to the Army and the nation.*"

We have no desire to render prejudiced judgment; the immensity of the undertaking must be considered together with the fact that there is no provision in our military organization for a pharmaceutical corps. But the health and life of our men deserve as early attention as possible. We all know how promptly the medical men responded to the call of duty and their action commands our highest commendation, but they were overburdened and hence duties had to be assigned to others and in some instances as related. The point is that an organized pharmaceutical service ought to be established, without unnecessary further delay, constituted of men who can take over a great deal of work that must now be done by the medical men and certainly can not be performed by inexperienced hands.

Surgeon-General George J. H. Evatt, of the British Army has aptly said "that the Medical Department existed for the individual benefit of the soldier, and if they failed in their duty to him they were not faithfully discharging their obligation."

The opinion prevails that Surgeon-General Gorgas does not favor the establishment of a pharmaceutical corps. We know that he is a man of unquestioned sincerity, actuated only by that which, *in his judgment*, he deems best for the Army, an executive of highest ability, fully conscious of the gravity of the situation that confronts us. He has undoubtedly advised with leading physicians and surgeons relative to the necessity of establishing a pharmaceutical corps in the U. S. Army. Whatever their views may be, we are persuaded that the majority of medical men desire the services of an organized efficient pharmaceutical corps.

An axiom of Democracy says: "The whole people is wiser than any group or man in it. Its judgment is safer, surer." The question of the right pharmaceutical service is a broad one, it is not of an individual case or opinion but one to be asked of thousands of physicians, of tens of thousands of parents and sons, "Should the best that is in pharmacy and pharmacists be made available?" "The nation depends upon the proper utilization of every available talent." "It is just as reprehensible to waste talent as material." The people rightfully expect Congress to provide the means and organization and that the Medical Department adopt modern and effective methods for restoring the injured as well as for the conservation of the health and lives of our soldiers. Neither Congress nor the Medical

Department can afford to disappoint them, and we have confidence in their purpose and ability. It is difficult to displace precedent, but the United States can not remain satisfied with our present system when they are made acquainted with the more efficient services rendered by the foreign pharmaceutical corps.

The following question is relevant: "Would the Medical Department of the Army be more or less efficient with an organized corps of trained pharmacists than under the present system?" Other nations have answered the question by an extension of this service, and the Senator from Rhone, Mons. P. Cazenenve testifies to the efficiency of the French Pharmaceutical Corps by saying "That they have contributed eminent service to the country and gained the love and respect of the citizens of France."

Surgeon-General Gorgas recently said, as quoted by the *New York Times* (italics are ours):

> "Line officers have had no hesitation in *ignoring* the sanitary recommendations of Medical officers of lower rank. The men of the Medical Corps should get higher rank, *rank commensurate with the importance of the positions they hold.*"

The Surgeon-General should turn his eyes on Pharmacy, a neglected branch of the Army Medical Service to which his remarks apply with equal force.

The Surgeon-General should visualize the possiblities of pharmacy as "the right arm of medicine" and while the services to be rendered are in some respects decidedly different than in civil practice, the relation obtains and there is relative possibility of coöperation. There is absolutely no reason why the breach between the professions should be widened when it is only by close coöperation that both are of the highest service for humanity, and this service is momentous for conserving health and life.

Why rank for pharmacists is necessary for best service to the men in arms need not be discussed at length. The first point is, the life of the Army demands efficient pharmaceutical service for it is an essential of its medical branch; much of the work that burdens this department can be assumed by pharmacists, otherwise the time is not far distant when the supply of medical men will be utterly inadequate for the needs of soldiers and civilians. Rank carries with it authority and respect, without it counsel with physicians and surgeons and other officers is impossible or at least impracticable. Lieut. W. A. Poucher of the British Medical Corps has noted the changed conditions now existing where commissioned pharmaceutical officers have been installed: "Where heretofore there were no consultations with the medical men, there now are to the supreme satisfaction of the latter, and this inspires confidence with the patients which had been absent before." Without rank our pharmacists could not coöperate with those of the foreign armies.

There is another point of importance, qualified pharmacists are men of ability and can secure positions in other departments of the service or qualify as officers.

It is unreasonable to expect that they would not prefer positions of rank or larger pay, hence many have already assumed other duties. This is of serious significance for it has to that extent depleted the ranks of qualified pharmacists, whereas if conditions were different their preference would have been for pharmaceutical service.

Pharmacists have endeavored to impress the importance of a pharmaceutical corps on the Surgeon-General; they are now importuning Congress. The Committee on Military Affairs of the House gave representative pharmacists from nearly every state a respectful hearing on March 19, and the members of the Committee were deeply interested in the presentation. It is not a question of selfish promotion and it is a matter of such evident necessity that some pharmacists are perhaps not as patient as they should be. In the meantime, now, every pharmacist in the country should deem it his duty and privilege to impress the utility of pharmaceutical service on the people so that they will join in the movement, by expressing their honest convictions to their Congressmen and Senators. It is the trumpet call to duty and opportunity of service, for the number of those who are sick and wounded is many, many times larger than those who are killed in action, and the service does not end here for the conservation of health is paramount.

"This problem is ours, our own flesh and blood is dedicated to the struggle." Pharmacy has a mission and pharmacists desire to be of service; they will not have pharmacy discredited, because they know pharmacy in the Army can not be ignored without sacrifice of life and health of our soldiers. E. G. E.

THE HEARING ON THE EDMONDS BILL.

On March 18, pharmacists from all over the country assembled at the New Southern Hotel, Baltimore, for a discussion of the Edmonds Bill and to plan for submitting arguments before the Committee on Military Affairs of the House, at Washington, Tuesday, March 19, at 10.30 A.M.

The large gathering of representatives in attendance from every section of the country speaks for the deep interest that pharmacists have in the establishment of a Pharmaceutical Corps. The greater number of the state pharmaceutical associations as well as the national organizations connected with the drug trade were represented, and also a majority of the schools of pharmacy holding membership in the American Conference of Pharmaceutical Faculties. There was a free discussion of the Edmonds Bill and also of the arguments in support of a pharmaceutical corps in the U. S. Army. S. L. Hilton, chairman of the A. Ph. A. Committee on the Status of Pharmacists in the Government Service, presided and R. P. Fischelis, secretary of the National Pharmaceutical Service Association was nominated secretary of the meeting.

A committee was appointed to present amendments that would be acceptable for the Edmonds Bill, in case the Committee on Military Affairs would request that changes be made, or if objections were interposed to any of the provisions of this measure. The main change advocated in the draft was to make the ranking officer in the Pharmaceutical Corps a colonel instead of a major, with majors, captains, lieutenants and other officers to correspond to the various branches of the service.

The other modifications related chiefly to phraseology and that various acts provided for in the bill and requiring the approval of the Surgeon-General, should also in addition have the sanction of the Secretary of War.

As speakers at the hearing, Dr. Frederick J. Wulling was named to offer the arguments for the establishment and needs of a pharmaceutical corps in detail. Dr. J. Madison Taylor, of Philadelphia, was selected for voicing the subject from the side of the medical profession. E. G. Eberle was asked to prepare argument showing the need of and the protection afforded by this proposal and also point out some of the unsatisfactory conditions existing at this time in the dispensaries of a number of the camps. Caswell A. Mayo was named to inform the members of the Committee relative to the pharmaceutical corps in foreign armies. To Samuel C. Henry was assigned the duty of an analytical survey of the Edmonds Bill. Prof. Charles E. Caspari was charged with the presentation of the work of pharmacists in compiling standards for the materia medica employed by physicians in their practice. W. L. Crounse was delegated to represent the manufacturers and combat the report that they are not in favor of the establishment of a pharmaceutical corps. The committee for preparing amendments to the Endmonds Bill was named as follows: Joseph W. England, E. C. Brokmeyer, W. L. Crounse, J. A. Koch and R. P. Fischelis.

At Washington the delegates who had met on the previous day in Baltimore were joined by quite a number of others, including a large delegation from New York. Not only was Congressman Edmonds impressed by this large attendance but the Chairman of the Committee on Military Affairs, the Honorable S. Hubert Dent acknowledged the evident coöperative spirit on the part of pharmacists.

The meeting was called to order at the hour set for the hearing and was to have adjourned promptly at twelve o'clock. The interest of the members of the Committee, however, prompted them to freely interrogate the first speaker, Dr. Frederick J. Wulling, so that the larger part of the time assigned for the hearing was taken up by him in presenting his case and in answering questions propounded by members of the Committee.

Dr. Wulling was followed in his remarks by Dr. J. Madison Taylor, who introduced strong and forceful arguments from the physician's standpoint as to why a pharmaceutical corps should be established, stressing the importance of qualified service for this organization.

The time allotted had passed but the Chairman of the Committee as well as the members were so concerned in the subject that they consented that the other speakers briefly state their points, and all of them were permitted at a later day to add to their arguments such statements that it was impossible for them to submit for the want of time.

It was clearly evident that the Committee was impressed and, while there is no certainty as to what their conclusions will be, every one in attendance was highly gratified over the consideration given to the subject and the courtesies which had been extended by the Committee and Congressman Edmonds.

There has been progress, the message should be carried to the people, such help counts for much, and it stands to reason that every citizen who has a son in the service will readily coöperate, if advised relative to the purpose of the Edmonds bill. Do your duty as citizen and pharmacist. E. G. E.

SCIENTIFIC SECTION

THE MICROANALYSIS OF MALTED MILK.*

BY C. W. BALLARD.

At first thought the application of microanalytical methods to the examination of malted milks seems rather impracticable and the work was undertaken more in the spirit of curiosity than with any real hope of definite results. Chemical methods, even those involving determinations of diastatic power and amino acids content, had failed to yield dependable information excepting as regards fat, protein, ash and moisture. Diastatic figures, even in authentic samples, were widely different. The fat, protein and ash content of a given sample would certainly establish whether whole or skimmed milk had been used in the preparation; but these results do not tell us if the sample is genuine or not. We are dealing with mixtures of varying composition and although limits of variation can be fixed, chemical methods alone will not give us the information we most desire, besides they are complicated and consume much time. A microanalytical determination of a malted milk sample can be fully completed by an experienced worker in less than one hour. Such a report will tell us what kind of milk and malt has been used, and what is more important, whether the sample is a standard processed article or an imitation mixture.

At the time this investigation was started there were no standards for malted milk. Consequently it would have been difficult to prove that several spurious articles sold under this title were misbranded. Prosecution would have involved the question of proper definition of the term "malted milk" and whether the word "malted" was really used in its adjective sense or merely as a trade name. With the issue of Food Inspection Decision 170 (*Service and Regulatory Announcement* 20, July 2, 1917), the proposition becomes less complicated, for malted milk is defined in this decision. Referring to the text of the decision we find the following:

> "Malted milk is the product made by combining whole milk with the liquid separated from a mash of ground barley malt and wheat flour, with or without the addition of sodium chloride, sodium bicarbonate and potassium bicarbonate in such a manner as to secure the full enzymic action of the malt extract and by removing water. The resulting product contains not less than seven and one-half percent (7.5%) of butter fat and not more than three and one-half percent (3.5%) of moisture."

It will be apparent from this statement, that the term malted milk, as used at present, is not merely a trade name for the product of a few manufacturers. Products now sold under this title must fulfil certain specifications. I might add that very few of the samples examined would comply with the above requirements. Malted milk is not a *mixture* of various malt products and powdered milk, but is a preparation in which the malt and milk have been changed by process of manufacture so that the resultant differs in chemical constitution as well as microscopical characters, from the substances used in its preparation. The term "processed" will be used here to designate the standard malted milk which fulfils the requirements of the above decision.

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* Read before Scientific Section, A. Ph. A., Indianapolis meeting, 1918.

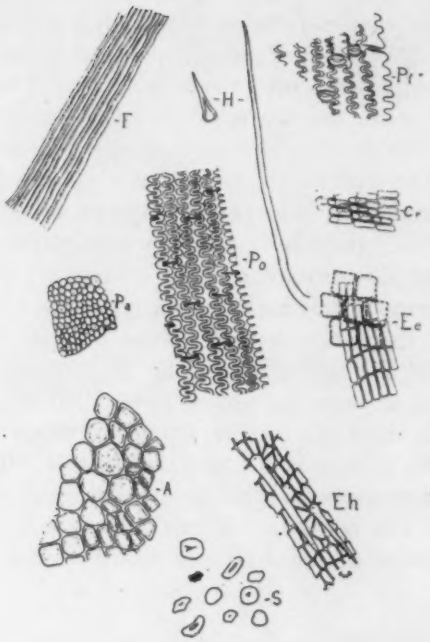

FIG 1

Powdered Malt.

F, Fiber; H, Hairs; Pi, Inner epidermis of palet; Po, Outer epidermis of palet; Pa, Parenchyma; Cr, Cross cells; Ee, Epicarp overlying spermoderm; Eh, Palet tissue with hairs; A, Aleurone cells; S, Starch.

FIG. 2

Dried Malt Extract.

D, Extract or diastase masses; H, Malt hairs; S, Starch; P, Palet tissue of barley.

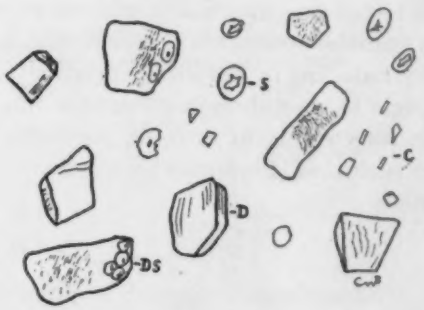

FIG. 3

Diastase.

D, Diastase masses; S, Starch; C, Crystals; DS, Diastase mass with starch.

In the preparation of specimens for examination, temporary mounts are best. Glycerin jelly mounts are very poor as even slight heating alters the appearance of the sample. Glycerin, alcohol and water mixture (1 : 1 : 1) is the best medium if specimens are for immediate use. Permanent slides may be prepared by using glycerin, or better still, petroleum oil as a mounting medium. Oil mounts are necessary in every instance as sugars and water-soluble constituents dissolve and are apt to be overlooked. As a preliminary to the microscopical examination, it is absolutely essential that the analyst be thoroughly familiar with the differences in appearance and structure of the various materials used in the manufacture of malted milk. Milk powders and malts vary widely because of different processes of manufacture. The use of dried malt extracts and various fillers add to the difficulty of the work. The materials found by the writer to enter into the manufacture of malted milks, genuine and otherwise, are powdered skimmed milk, powdered whole milk, powdered malt, dried extract of malt, diastase, bread products, glucose, cane sugar, various starches, gelatin and gums. The microscopical characters of each of these substances will first be described.

SKIMMED MILK POWDER.

The process used in the preparation of skimmed milk powder will have great influence upon its color and microscopical appearance. The milk may be evaporated to dryness in steam kettles, vacuum pans or by various devices which force the

milk in spray form over heated rollers. The color of powdered milk prepared in an open steam kettle is golden yellow to dark orange depending upon the degree of heat employed in the operation. It is rather difficult to reduce this milk to fine powder. Vacuum pan and spray dried milks are nearly white and are very finely subdivided. Manufacturers prefer a milk dried by this method as it is more readily soluble than an open dried milk. The individual particles of a skimmed milk powder prepared by vacuum or spray process, are for the most part spherical, although irregular masses are also found. Each particle is probably an aggregation of fat globules held together by solidified albuminous material. Some of the masses may be likened in appearance to enormous polynuclear leucocytes, the fat globules corresponding to nuclei. Many of the forms show a central portion of irregular outline almost filling the mass and containing numerous fat globules. A few of the particles are without apparent fat globules but appear to be filled with a granular substance. Other forms, especially those of irregular outline, are crossed by radiating or branching striations. Worthy of note is the fact that lactose will begin to crystallize in glycerin or water mounts within two hours and will proceed to such an extent as to fill the entire slide. The constancy of this crystallization is such that it becomes an excellent indication of skimmed milk in many preparations.

WHOLE MILK POWDERS.

The methods employed in preparing whole or full milk powders are identical with those discussed under skimmed milk and give rise to the same variations in appearance and color. Open dried full milks are deeper in color and even more impossible of reduction to fine powder. Spray dried full milks are more of a cream color than skimmed milks of similar preparation but are as finely subdivided as the latter. Full milks are not as readily mixed with water as the skimmed product, or as it would be put in the trade, they are not as soluble. This fact has been given as a reason why so many manufacturers of imitation articles use skimmed milk powder instead of whole. Incidentally the skimmed product is cheaper. The particles of a spray or vacuum dried full milk are smaller than those of skimmed milk and more regularly spherical in form. Irregular masses are comparatively scarce. The greater number of the masses do not show the fat globules as distinctly as in skimmed milk. For the most part the masses are of granular appearance and pearly lustre. Several masses may be adherent and give the appearance of budding from a main particle. A few show one or two fat globules embedded in the granular substance. Lactose does not crystallize from water or glycerin mounts of whole milk as readily as it does from skimmed milk. Crystallization may be delayed for a day or even longer.

A few preparations are manufactured from open kettle dried milks. This form of milk powder, skimmed or whole, is difficult of description but fairly easy to recognize. The milk particles are in the form of irregular fragments having fat globules scattered over their surface. In full milks dried by this method, the fat globules are very large and almost cover the surface of the fragments. Open dried skimmed milks have smaller and fewer fat globules and many of the fragments of albuminous material are free from adhering globules.

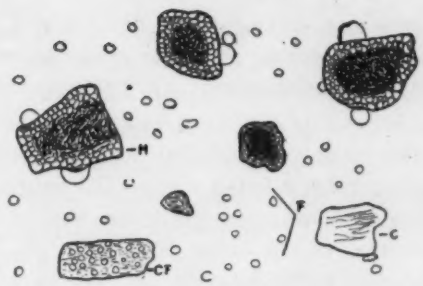

FIG. 4

Dried Milk (Open Heating).
M, Milk masses; F, Free fat globules; C, Coagulated material; FC, Coagulated material with fat globules.

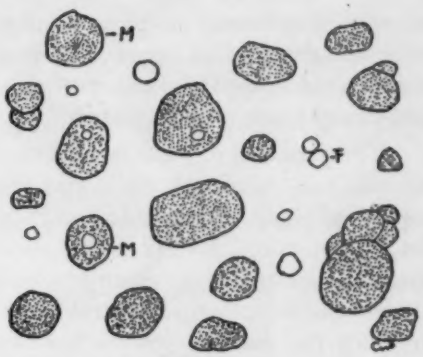

FIG. 6

Whole Milk (Vacuum Dried).
M, Milk masses; F, Fat globules.

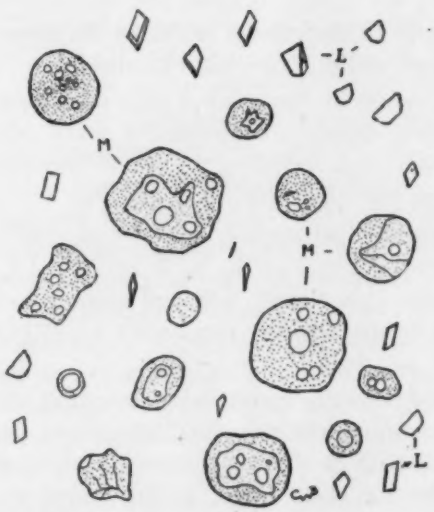

FIG. 5

Skimmed Milk (Vacuum Dried).
M, Milk masses; L, Lactose crystals.

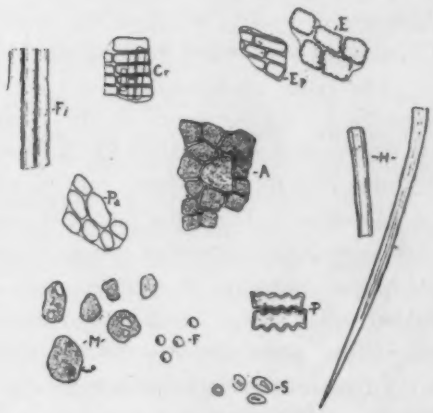

FIG. 7

Standard Malted Milk.
Fi, Fiber from malt; Cr, Cross cells from malt; E, Epicarp cells from malt; Ep, Epidermis of spermoderm from malt; Pa, Parenchyma of malt; A, Aleurone cells of malt; H, Hairs of malt; P, Palet cells of malt; S, Starch; M, Milk masses; F, Fat globules.

MALT POWDERS AND PREPARATIONS.

It is common practise with many producers of so-called malted milks to use various malt powders or preparations and merely mix these with certain quantities of powdered milk. A preparation of this sort would be more appropriately named "Malt *and* Milk" and is entirely different in composition and microscopical appearance from a standard malted milk which complies with the specifications of Food Inspection Decision 170. In examinations of malted milks one will encounter one or more of the following malt products: powdered malt, powdered dried malt extract and diastase. Descriptions with illustrations of these materials in powdered form are here given.

Malt Powder.—Powdered malt exhibits most of the elements of barley although some of these have undergone changes in the malting process. The elements

present, in the order of their relative amounts are: (1) Starch; (2) hairs; (3) outer epidermis of palet; (4) aleurone cells of endosperm; (5) inner epidermis of palet; (6) cross cells of pericarp; (7) parenchyma of endosperm; (8) fibrous tissue; (9) epicarp tissues; (10) tube cells.

The starch is more or less changed by the action of amylolytic ferments during malting. Many of the grains appear to have been eaten away, the central portion or hilum being the first part to undergo digestion; such grains are hollowed out at this point. Other grains show destruction of the outer portions. These partially digested grains when treated with aqueous iodine solution, give the purple to red reaction of amylodextrins and maltodextrins. Depending upon the degree to which the malting process has been carried, we find more or less unchanged starch. Many of the grains showing no physical change fail to give the blue reaction with iodine.

The hairs are of two kinds; short thick-walled and long thin-walled varieties being present in about equal amount. They are usually broken, but the relative thickness of wall to width of the lumen, serves to distinguish one from the other. These hairs were found in every sample of malt and malt product examined.

The outer epidermis of palet is distinguished by the thick-walled wavy cells common to many plants of the Graminaceae family. Between the wavy cells are stoma with guard-cells tightly fitting and almost occluding the actual opening. We also find in this tissue, very short, thick-walled, warty hairs and hair scars.

Aleurone cells of the endosperm are white, thick-walled, angled and closely packed with dark granular nitrogenous material.

Inner epidermis of palet consists of white, thin-walled, long and more or less angled cells. Short thick-walled hairs and nearly square stoma with small but well-defined apertures occur in this tissue.

Cross cells of pericarp are usually adherent to the spermoderm or coat of the endosperm. They are arranged in two layers, one heavy, the other light, consisting in both cases of rectangular, thin-walled cells with or without intercellular spaces. Both layers extend in the same direction and are at right angles to the underlying spermoderm cells.

Parenchyma of endosperm is thin walled, rounded in outline and may or may not contain starch.

Fibrous elements, if occurring singly, may be mistaken for thin-walled hairs, but all fragments of this tissue were in well defined groups, sometimes with remnants of the vascular tissue attached.

The epicarp cells are similar in structure and appearance to those of the inner epidermis of the palet; hairs are present but stoma appear to be lacking.

Tube cells were not apparent in any sample of malt subjected to examination.

Powdered Dried Malt Extract.—This form of malt is probably used more than any other in the manufacture of mixed products sold under the name of malted milk. A great disadvantage is that it is extremely hygroscopic and preparations containing it must be kept very dry or caking will occur. Upon standing in a moist atmosphere for any length of time, secondary fermentations take place and the product assumes a disagreeable odor. It is fairly soluble and when mixed

with skimmed milk powder and used at the soda fountain, produces a beverage without much sediment, of clean white color and even texture. The drink may even have a better appearance than if a standard malted milk had been used.

The elements of note in dry malt extracts are: (1) diastase masses; (2) starch; (3) crystals; (4) tissue fragments; (5) hairs.

The diastase masses are irregular, angled fragments of light yellow color, striated and very soluble. The exact character of this material can only be studied in oil mounts.

Starch is present in small amounts and most of the grains show the effects of diastatic action.

Crystals are very small and for the most part are rectangular in shape with a few of rosette form.

Tissue fragments are mainly loose parenchyma and broken walls of aleurone cells.

Hairs are of types characteristic to malt.

MIXED AND PROCESSED MALTED MILKS.

The Food Inspection Decision definition of malted milk requires that enzymic action shall have taken place and shall have modified the constituents of the mixture. In other words the compound shall have been processed. Malted milks prepared by mechanically mixing certain quantities of powdered milk with malt or malt preparations, no enzymic action having taken place, are conveniently referred to as "mixed malted milks" in distinction to the "processed" products just mentioned. Although patent rights have expired, the details involved in the manufacture of the processed products are not by any means public property and are nearly impossible to obtain from successful producers. Sufficient to say that considerable experience and mechanical equipment is necessary in the work. From the appearance of certain samples, even before the definition was published, I had decided that in the process of manufacture enzyme action had produced certain changes in the materials used. The malt starch was almost entirely digested and not over two or three grains were present in a field. The milk was not in spherical masses containing fat globules embedded in albuminous material although free fat globules were numerous and well distributed. It is certain that in processing, the amylolytic ferments of malt convert the starch to sugars and it may be that the small amounts of proteolytic enzymes in malt have an action upon the albuminous materials of the milk causing their disruption or rendering them soluble in some other manner.

Mixed malted milks are readily identified by the presence of unchanged fat masses, yellowish malt extract particles and the relative scarcity of malt tissues. One must search several fields to locate hairs, starch or other malt elements. Dextrose and soluble particles of malt extract will be visible until dissolved. Oil mounts are necessary for prolonged examinations of these soluble materials. One of the samples submitted for examination was found to be a mixture of powdered malt and milk and displayed all the characteristic elements of both materials. Such combinations are rare and because of the large amount of starch present are not readily soluble or miscible.

The characteristic elements in a standard or processed malted milk, in the order of amounts present, are: (1) free fat globules; (2) milk masses; (3) parenchyma; (4) aleurone cells; (5) palet tissue; (6) malt hairs; (7) diastase masses; (8) starch.

Fat globules are very small, are well distributed throughout the field and are not in aggregates or masses.

Milk masses for the most part are irregular and not spherical in form. Embedded fat globules are present in some of the masses but are almost hidden by the granular substance.

Parenchyma occurs as small, much broken fragments of thin-walled cells.

Aleurone cells withstand the malting process and show very little change from those described under malt.

Palet tissue remains unchanged during processing and is described under malt.

Hairs although much broken are otherwise unchanged.

Diastase masses are similar to those described under dry malt extract. They dissolve rapidly in glycerin or water mounts.

Starch is present in very small amount and the grains show but little change from those of malt.

SUBSTITUTE OR SPURIOUS MALTED MILKS.

Although by far the greater number of spurious malted milks upon the market are merely mixtures of powdered milk, dry malt extract and dextrose, other substances may be present. Chief among these added materials are various thickeners. The beverage prepared with a standard malted milk is apt to be somewhat thicker in consistency than that prepared with the imitation. To overcome this defect the producers of substitutes often add baked bread products, corn starch and possibly gelatin and gums. Powdered bread crumbs are most used for this purpose as they are cheap and mix rapidly and well with cold water. Starches, gelatin and gums work best in beverages prepared with hot water. Some of the labels attached to these imitation products show much ingenuity in avoiding direct statements that the article is malted milk. The presence of glucose is often accounted for in labelling by the statement that the material contains a corn product. Bread crumbs have been covered by the general term cereals. In some cases the substitute is sold under various titles framed for no other purpose than evasion of misbranding ordinances.

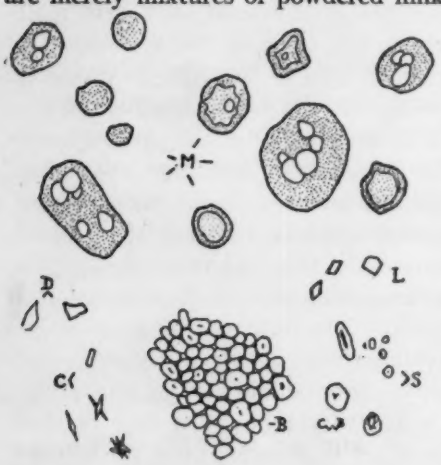

FIG. 8

Substitute Malted Milk.

M, Milk masses (skimmed); D, Diastase or extract masses; L, Lactose crystals; C, Crystals from malt extract; S, Starch; B, Powdered bread.

The following tabulation of microanalyses is sufficient to show the extent to which sophistication is carried in the manufacture and sale of malted milk:

Sample.	Sold as	How prepared.	Form of malt.	Form of milk.	Source.
1	Malted milk	Mixed	Extract	Skimmed	Dairy
2	Malted milk	Mixed	Extract	Skimmed	Manufacturer
3	Malted milk	Mixed	Extract	Skimmed	Manufacturer
4	Malted milk	Mixed	Extract	Skimmed	Manufacturer
5	Malted milk	Processed	Infusion	Whole	Pharmacist
6	Malted skim milk	Processed	Infusion	Skimmed	Manufacturer
7	Malted whole milk	Processed	Infusion	Whole	Manufacturer
8	Malted milk	Mixed	Extract	Skimmed	Manufacturer
9	Malted milk	Mixed	Powdered	Whole	Manufacturer
10	Malted milk	Mixed	Extract	Skimmed	Manufacturer
11	Malted milk	Processed	Infusion	Whole	Confectioner
12	Malted milk	Mixed	Extract	Skimmed	Manufacturer
13	Malted milk	Mixed	Extract	Skimmed	Manufacturer
14	Malted milk	Mixed	Extract	Skimmed	Manufacturer
15	Malted milk	Processed	Infusion	Whole	Confectioner
16	Malted milk	Mixed	Extract	Skimmed	Dairy
17	Malted milk	Processed	Infusion	Whole	Confectioner
18	Malted milk	Processed	Infusion	Whole	Confectioner
19	Malted milk	Processed	Infusion	Whole	Confectioner
20	Malted milk	Mixed	Extract	Skimmed	Confectioner
21	Malted milk	Mixed	Extract	Skimmed	Confectioner
22	Malted milk	Mixed	Extract	Skimmed	Manufacturer
23	Malted skim milk	Mixed	Extract	Skimmed	Manufacturer
24	Substitute[1]	Mixed	Extract	Skimmed	Manufacturer

[1] Contains bread crumbs.

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DEPARTMENT OF HEALTH, NEW YORK CITY.

THE STABILITY OF CANNABIS SATIVA AND ITS EXTRACTS.

BY HERBERT C. HAMILTON.

A recent publication by Eckler[1] regarding the deterioration of *Cannabis indica* raises a question which can be answered positively only after a long series of experiments such as Eckler himself conducted.

Over a period of five years, samples of crude drug cannabis were kept under observation, storing it under different conditions. He found that it loses from 1 to 2 percent of its activity monthly, depending apparently on the temperature of the storage room. Five years from now, however, the subject will probably have passed so completely out of general interest that there will be no incentive either to complete the experiments or to make the results public, while at the same time such an apparently authoritative statement going unchallenged may lead to a number of errors. It seems advisable, therefore, to publish some data bearing on this question even if it is not based on systematic experiments. In the course of nearly 20 years' experience in applying the physiological assay process to cannabis preparations, a number of unrelated facts are gradually collected which, taken as a whole, have a value not to be ignored.

Cannabis indica, or to use the botanical term to cover *Cannabis sativa* wherever grown, is scarcely deserving of the attention it has received from time to time in recent years. While a potent drug in many respects, its action is not specific in therapeutics and is not that of a deadly poison.

However, as a potent drug in which no active substance with well-defined chemical characteristics has been recognized, it requires standardization and sufficient investigation to insure that inert extracts be kept off the market.

Attention was first called to the variability of the drug by Houghton,[2] who found that about 50 percent of the fresh samples of crude drug were devoid of activity.

Later, Houghton and Hamilton[3] described a method by which extracts can be standardized and uniformity established in the quality of commercial extracts. It depends on the fact that dogs react to the drug in a degree proportionate to the amount of a standard product administered, and that the reaction is not only characteristic but measurable.

This method, on which all the later modifications have been based, has served as a means of eliminating most of the worthless drug from the market and of discovering evidences of deterioration. Thus it was observed that Powdered Extract Cannabis is apparently an unstable form since several samples have been found inactive. In one case[4] some step in the process of manufacture caused immediate and almost complete loss of activity.

No other evidence of deterioration has been observed, however, except that which tends to corroborate the data published by Marshall[5] and quoted by Eckler. The deterioration of the substance to which the name of cannabinol was given while easily demonstrable, does not prove anything about the drug itself or its extracts except when similar phenomena are shown to exist in each. The conclusion which Marshall drew from his observation that "There is good reason to believe that preparations of *Cannabis indica* relatively quickly deteriorate" is not based on any data submitted and is not justified by any data obtained except the two preparations already mentioned. Marshall himself did not apply it to the drug, while Eckler concludes that the crude drug alone is under suspicion, not having observed any deterioration in the fluidextract.

Observations on the crude drug other than samples of indefinite age, are limited to two which will be described below. During a long experience in assaying samples of the crude drug before or immediately after purchase, no low activity has been observed except such as is easily referable to its physical or botanical properties. For example, low activity may be expected from samples consisting of sweepings or from those consisting largely of stems or seeds, or from those having a low yield of alcohol-soluble extractive. (NOTE: By alcohol-soluble extractive is meant the part which will redissolve in 95 percent alcohol after twice evaporating to complete dryness on the steam bath.) Low activity of crude drug other than the exceptions noted would prove nothing in itself because of having no data as to the age of the sample.

Inquiry among holders of crude drug rarely brings to light samples much over 1 year old in stock, and the standard is usually made from drug no fresher than this.

Two samples, however, have recently been obtained from shelf bottles, one 14 years on the shelf and the other at least 21 years and probably longer, 21 years being the limit of the botanist's knowledge. The results of an assay of these two samples in comparison with standard are as follows:

14-year old drug	70 percent
21-year old drug	20 percent

The first was known to the writer to be of good quality, probably fully standard. The second lot was probably also a first-class quality of *Cannabis indica* from its appearance, but there were no recorded tests in existence to prove its activity.

Exact data on old F. E. *Cannabis indica* is limited to one sample other than an occasional retest of samples not over 2 or 3 years old which are almost invariably as active as when fresh. The old sample referred to above was obtained from Hutton and Hilton, retail pharmacists of Washington, D. C. It was prepared by Squibb and had been on the shelf for 17 years. The assay showed a value equal to about 70 percent or between two-thirds and three-fourths as strong as standard. Its original value may be assumed to have been 100 percent.

Exact data on Extract *Cannabis sativa* is limited to one sample, an extract of *Cannabis Americana* first selected for a series of experiments to prove the applicability of the physiological assay to drug intended for clinical use.[6] This sample has been in constant use in our laboratory for 9 years as a standard for the selection of dogs for assaying cannabis. It is at this time as active as an extract of the best obtainable commercial lots of *Cannabis indica*. It is rare indeed when any extract exceeds it in activity. The sample is kept in a tin can with tightly fitting lid, but is opened on an average not less often than once every week.

The bottles containing the crude drug are 1-pound flint glass, glass-stoppered bottles which have never been sealed and have been kept on shelves exposed to the light and variations of temperature normal to a laboratory work room.

That the above results are not open to the suspicion of being obtained on the basis of a standard of low activity is demonstrated by the fact that comparison was made with a standard which has recently been proposed and prepared by Pearson.[7] This is in line with a similar suggestion by Lyons[8] and with that by Hamilton.[9] It eliminates the variable standard suggested in the Ninth Revision of the U. S. P., and provides identical material for comparison in the several laboratories.

The results summarized above are based on administering doses to dogs and observing the degree of the reaction, comparing the effect in each case with that of a product of known good quality. The dogs' behavior under cannabis must have been previously observed since no two react in exactly the same way. The reaction which is described as "well-marked" or "standard" refers to the incoordination and is not absolute but only relative to that produced by the Standard on that dog.

The doses used and the observed reactions are the bases of the results described in the foregoing article and are given in detail below, the work having been carried out by my colleague, L. W. Rowe:

Sample No. 1 is F. E. *Cannabis indica* from 14-year old drug.

Sample No. 2 is F. E. *Cannabis indica* from 21-year old drug.

Sample No. 3 is F. E. *Cannabis indica* from Hutton and Hilton, Washington, D. C.

Sample No. 4 is S. E. *Cannabis Americana.*

Sample No. 5 is F. E. *Cannabis indica*, mixture of 4 commercial samples supplied by Pearson.

	Dose per kilo.	Result.
Sample 1.....	0.08 mil	Slight incoördination
	0.10 mil	Distinct
	0.12 mil	Well marked
	0.14 mil	Standard
Sample 2.....	0.10 mil	No reaction
	0.20 mil	Very slight
	0.30 mil	Slight
	0.40 mil	Well marked
	0.50 mil	Standard
	0.60 mil	Very marked incoördination
Sample 3.....	0.10 mil	Distinct
	0.12 mil	Well marked
	0.15 mil	Very marked incoördination
	0.12 mil	Well marked, but scarcely standard
Sample 4.....	0.008 mil	Well marked
	0.010 mil	Standard
	0.012 mil	Very marked incoördination
Sample 5.....	0.08 mil	Well marked
	0.10 mil	Standard
	0.12 mil	Very marked incoördination
Sample 6.....	0.025 mil	No reaction
	0.03 mil*	Slight incoördination
	0.04 mil	Distinct incoördination

* This is the result using the U. S. P. dose and observing the conditions rigidly.

The above data leads to the conclusion that the rate of deterioration of *Cannabis sativa* and its official extracts is much slower than would be assumed from Eckler's work and that for practical purposes it may be ignored.

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(7) Pearson, J. A. PH. A., Vol. 6, 1917, p. 876.
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(9) Hamilton, *Am. Journal of Pharmacy*, Feb., 1917.

FROM THE RESEARCH LABORATORY OF
PARKE, DAVIS & CO., DETROIT.

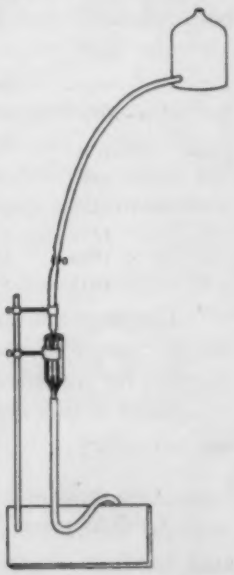
THE SOLUBILITY OF PHOSPHATIC KIDNEY STONES.

BY J. F. GEISINGER, M.D., W. F. RUDD AND E. V. GREEVER.

It is unnecessary to explain that any measure contributing to the non-operative removal of urinary calculi is a desideratum of some moment. So common is the condition and so imperative is its demand for attention that a new method of attack need only demonstrate its safety and efficiency to be immediately adopted with enthusiasm.

Operation alone will remove large calculi in the kidney or renal pelvis. About 50 percent of the small stones, however, are according to some statistics, spontaneously expelled if the patent is not hurried into the hands of an over-zealous surgeon. For the remaining 50 percent the cystoscope has done much. We are now cutting the ureteral orifices, dilating the ureters, changing the axis of ureteral stones by catheter manipulations, and injecting around the stones various substances, including lubricants (glycerin) and ureteral relaxants (papaverin). By this means many stones are being teased out or actually picked out with forceps when low enough in the ureter. There always remains, however, a certain number of small stones which will respond to none of these methods and others which will finally yield only after prolonged cystoscopic coaxing, more or less torturing to the patient. It was in consideration of this class that the writers attempted to evolve some additional method short of operation. No consultation of the literature has been made and the method may or may not have been proposed or used before.

It is, of course, well known that certain urinary concretions appear to depend on the acid-alkaline content of the urine. This fact has led to the oral administration of numerous "solvents" which were intended to alter the reaction of the urine and cause dissolution of the calculus. Dismal failure has met this line of treatment. On the same principle that we now irrigate infected renal pelves with formaldehyde and no longer blindly (and uselessly) give urotropin by mouth and trust to Providence to deposit it in the pelvis in the shape of formaldehyde in sufficient quantity, it occurred to us to make a direct introduction of the solvent. Briefly, it is proposed, in a given case, to introduce through a cystoscope a catheter up to the point of lodgment of a stone in the ureter. Through this catheter the solvent will then be allowed to pass drop by drop on the stone until the mineral contents have been dissolved and the concretion has been reduced to the pulp described hereafter. Two courses are then open: (1) The catheter may be withdrawn and ureteral peristalsis allowed to expel the concretion which can now be easily moulded to any shape. (2) A fish-mouth catheter (now under construction) may be passed up to the concretion and the soft pulp aspirated into the mouth of the catheter by means of a suction apparatus, such as a hypodermic syringe. Details of the technique are clear in the mind of the writer but need not be entered into here.



It is, of course, important to be certain in advance that the acid will do no damage to the kidney. We had planned extensive animal experimentation in

connection with this point and several other points associated with the problem. We had also proposed an attempt to extend the applicability of the method to stones other than phosphatic. Unfortunately, circumstances have interrupted this programme and the prospect of an early transference of Dr. Geisinger to France or some other portion of the war zone, makes it unlikely that the subject can be further studied for many months. Hence, it may be that we are premature in introducing the discussion; our results thus far, however, have been of such a character as to lead us on with great enthusiasm, and perhaps this publication will at least induce others to carry the work out to definite conclusions on one side or the other.

The following tables indicate results of experimental work on the stones *in vitro*,

The solution to be used was placed in the one-gallon bottle and the flow regulated by means of the screw clamp so that from 12 to 27 drops would drop on the stone per minute. This was allowed to run until the stone became soft.

An interesting feature about this was that the stones contained some organic matter which, while saturated with the solution, remained as large as the original stone and of the same color but of such a consistency that they could hardly be handled without breaking, and could easily be moulded into any shape. On drying, this residue would contract to about one-tenth of its original size and become dark brown to black in color.

At frequent intervals (except in Stones C and D, Experiment 1), the stone was taken out and examined to determine whether or not the inorganic constituents had been dissolved.

After the stone had become soft, which showed the inorganic constituents had been removed, the residue was dried and weighed.

TABLE 1.

An analysis of these stones indicated the presence of the following radicals: Calcium, traces of magnesium, phosphate and traces of carbonate.

Stone.	Weight.	Solution used.	No. of drops per minute.	No. Cc. used.	No. Cc. used per mg.	Weight of residue.
A	0.1778	2% aluminium acetate	25	500	2.81	0.1694
B	0.3352	5% ammonium chloride	27	2000	5.98	0.3302
C	0.1316	1% hydrochloric acid	19	2500	19	0.011
D	0.1694	1% hydrochloric acid	20	720	4.25	0.0132
E	0.1818	1% hydrochloric acid	15	80	0.44	0.0118

The large amount of solution used in C and D was due to the fact that we could see no change in size or color of the stone and, therefore, could not tell when all the mineral constituents were dissolved.

Stone E was observed very carefully to determine the minimum amount that was necessary.

TABLE 2.

An analysis of these stones indicated the presence of the following radicals: Calcium, magnesium, phosphate and traces of carbonate.

Stone.	Weight	Solution used.	No. of drops per minute.	No. Cc. used.	No. Cc. used per mg.	Wt. of residue.
A	0.0727	0.26 hydrochloric acid	15	390	5.38	0.006
B	0.1202	0.13 hydrochloric acid	5 to 7 Cc. were allowed to run on the stone and remain for 1 to 2 minutes	860	7.15	0.007
C	0.1414	0.13% hydrochloric acid	18	500	3.56	0.006
D	0.2864	0.13% hydrochloric acid	20	2090	7.37	...

In an attempt to duplicate the natural condition in the body, stone D was placed in the large tube. An equal number of drops of the hydrochloric acid solution and urine obtained from the patient, were then allowed to flow through a tube and drop on the stone. This made approximately a 0.06 percent solution of hydrochloric acid acting on the stone till it was dissolved, which took about 48 hours.

From the experiments which we have reported, we feel justified in making the following statements:

First, that a 0.06 percent solution of hydrochloric acid will dissolve phosphatic stones.

Second, that the length of time the solution is in contact with the stone is a more important factor than the rate of flow.

In a limited way we have already demonstrated that acid eight times the strength of that to be employed clinically has no deleterious effect in the pelvis of a dog's kidney. Furthermore, we have used the acid in 0.5 percent solution in one patient with phosphatic diathesis and not only did no harm but accomplished excellent temporary results. Finally, in the treatment of renal infections, we have in scores of cases irrigated the pelves with silver nitrate varying in strength from 1 : 1000 to 5 percent and with formaldehyde solution varying in strength from 1 : 5000 to 1 : 1000. This is an accepted and highly effective treatment for this condition. Certainly the mild hydrochloric acid solution—less than ($^1/_8$ of 1 percent) will prove no more irritating than these pungent solutions. If it be objected that the process required a continuous hydrochloric acid drip lasting perhaps through several hours, we will reply (with a citation of cases if necessary) that we have conducted a continuous formaldehyde irrigation of the renal pelvis lasting from 3 to 24 hours and the patients have not only survived the treatment but recovered as a result of it.

Summed up in a word, we are satisfied that in expert hands the method will prove harmless, and if time permits we propose to put it to immediate clinical use. Only the results of its application in a series of actual cases will determine unequivocally whether it deserves the consideration it now appears to demand or whether it will eventually find its way to the therapeutic scrap-pile.

MEDICAL COLLEGE OF VIRGINIA,
RICHMOND, VA.

A NEW METHOD OF EXTRACTING DRUGS FOR ALKALOIDAL ASSAYING.*

BY WM. MASKE, JR.

In brief, the U. S. P. method for extraction of most drugs for alkaloidal assaying consists of macerating a weighed portion of the drug in an alkaline solution of ether, chloroform, or a mixture of the two for a certain length of time; then pouring off an aliquot part of this extractive.

There are some things in this method of extraction which all chemists will admit are undesirable, if a satisfactory method of improving them can be obtained.

* Read before Scientific Section, A. Ph. A., Indianapolis meeting, 1917.

In the first place, we have no means whereby we can easily test whether or not the crude drug has been completely extracted of its alkaloidal constituents; and, in the second place, the use of aliquot parts has always been considered a makeshift, and it is particularly so in alkaloidal assaying, since the moisture content of the drug and the addition of ammonia water produce changes in the volume of the extracting solvent which cannot but help to make the assay somewhat inaccurate.

The following method devised by the writer overcomes both of these errors; it is simple, and will be a useful remedy to the aliquot part method. There are only two things standing in the way of it; first, the method takes a longer time. Although the actual time that it takes is longer, yet it requires no more work on the part of the operator than the U. S. P. process. Secondly, the liquid with its extractive from the crude drug must be a very limpid one; hence the liquid used for extracting the drug must be ether, chloroform, or one of similar limpidity; and the drug itself must contain no fatty matter, or anything else that will impair the limpidity of the menstruum.

This new method of extraction is carried out as follows:

Into the stop-cock orifice of a separatory funnel there is inserted a wedge-shaped piece of purified cotton, to act as a filter but at the same time not be too slow in acting as such; a little experience will enable one to know just how tightly to have it fit. Both ends of the piece of cotton are cut off flush with the surface of the stop-cock, and the ends are slightly pushed in with a blunt instrument. The stop-cock is then wiped off with a clean towel so as to remove all cotton fibers, and finally reinserted into the separatory funnel. In selecting a separatory funnel for this process be sure to get one in which the stop-cock orifice has a fairly wide bore. No cotton fiber must be left on the plugged stop-cock or the apparatus will leak.

The drug to be assayed is weighed out. Less drug is needed than by the U. S. P. method. The amount of drug taken is not the amount used in the U. S. P. but the amount of drug that the aliquot part used for shaking out represents. Place this drug into the prepared separatory funnel and add half the amount of solvent directed in the U. S. P. method. The amount of solvent need not be accurately measured; it need only be approximate. Stopper and shake thoroughly; then add the amount of ammonia directed by the U. S. P. Shake every five minutes for one hour. Then pour about 10 Cc. of solvent around the rim of the funnel so as to wash any drug adhering to the sides into the menstruum. Stopper and let stand over night.

Then open the stop-cock and stopper and allow the extractive to filter off into another separatory funnel. When most of the filtrate has run off and it begins to drop slowly carefully add about 10 Cc. of the extracting liquid and let this filter off. This process of displacement is continued in 10 Cc. portions until a few drops of the filtrate evaporated to dryness and dissolved in 1 Cc. of $N/10$ HCl does not give more than faint opalescence with an appropriate alkaloidal precipitant. The combined filtrates are then made acid and the assay continued as given in the U. S. P.

In addition to overcoming errors, this method uses less drug, and usually less solvent than the U. S. P. method of extraction. In order to show that this method gives higher and better checking results than the U. S. P. process in practice as well as in theory, the following results are appended here. In eight assays of belladonna root, four carried out by each method of extraction, the results were as follows:

By the U. S. P. method of extraction the percents of alkaloids ran as follows: 1.59 percent, 1.69 percent, 1.56 percent, 1.64 percent. By the new method of extraction 1.66 percent, 1.71 percent, 1.66 percent, 1.65 percent. In eight cinchona assays carried on in the same way the results ran as follows: By the

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SPECIAL ATTENTION If you want to sell your drug store—or buy one in any state—or want any kind of a position—or need any kind of an employee—or need a Doctor, Dentist, or Veterinarian—write F. V. KNIEST, R.P., Bee Building. Omaha, Neb. Est 1904

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U. S. P. extraction method, the percentage of alkaloids was 6.31 percent, 6.28 percent, 6.41 percent, 6.24 percent. By the new extraction method, 6.37 per cent, 6.39 percent, 6.34 percent, 6.40 percent. In another assay of cinchoma, the writer took two samples, each five grammes, from the same batch of cinchona and got the same weight of alkaloid from each down to the fourth decimal place. This is the only perfect check that he has ever obtained in the hundreds of alkaloidal assays that he has run.

This method of extraction is applicable to all U. S. P. alkaloidal assays of crude drugs except colchicum seed, colchicum corm, opium and physostigma.

UNIVERSITY OF WASHINGTON,
COLLEGE OF PHARMACY.

SOME POSSIBLE PHARMACEUTICAL USES OF PARA-DICHLORBENZENE.

A PLEA FOR THE USE AND FURTHER INVESTIGATION OF A BY-PRODUCT RESULTING FROM THE WAR.

BY W. A. KONANTZ.[1]

In the chlorination of benzene at ordinary temperatures, about 85–90 percent of monochlorbenzene and 10–15 percent of dichlorbenzene, chiefly para, are produced. At the present time enormous quantities of benzene are being chlorinated, for it has been found that picric acid can be made more cheaply from monochlorbenzene than from phenol. At the same time, however, large quantities of dichlorbenzene are accumulating, for which there is very little demand. For the complete success of this most valuable process of manufacturing picric acid, it is necessary that uses be found for the dichlorbenzene. Owing to the firmness with which the chlorine atoms are attached to the benzene nucleus, *p*-dichlorbenzene does not enter readily into chemical reactions, and all attempts to convert it into other commercially valuable compounds have so far been unsuccessful. The physical properties of this substance are such, however, that the writer believes it may prove of considerable value in pharmacy. Some possible pharmaceutical uses which have occurred to the writer are here described, in the hope that pharmacists and manufacturers will try them out and so help to solve the problem of utilizing this by-product.

From the viewpoint of the pharmacist, the most valuable property of *p*-dichlorbenzene, and the one upon which most of its pharmaceutical uses will undoubtedly be based, is its powerful destructive action on certain lower forms of life. Galewsky, who studied the relative efficiency of many substances as moth exterminators,

[1] Research Chemist, College of Pharmacy, University of Iowa.

reported (*Z. Textil. Ind.*, 1915, 506) that *p*-dichlorbenzene is the most effective agent for this purpose, being superior to naphthalene, which is generally used. Many tons of *p*-dichlorbenzene could, undoubtedly, be disposed of annually in the form of moth-balls, moth-powders, moth-solutions, moth-paper, etc., if it were properly pushed. In physical properties *p*-dichlorbenzene resembles naphthalene very closely. It occurs as transparent, colorless flakes, somewhat unctuous to the touch, and of a faint, rather agreeable, camphor-like odor. It melts at 53° C. and boils at 172° C., the corresponding constants for naphthalene being 79° C. and 218° C.; it is, therefore, more volatile than the latter. Besides its greater efficiency as a moth exterminator, *p*-dichlorbenzene has the added advantage over naphthalene that the odor can be more readily removed from garments with which it has been packed. Strips of cloth saturated with a concentrated solution of *p*-dichlorbenzene in gasoline and dried, lost the odor completely after several hours of airing in the sun. The writer further finds that *p*-dichlorbenzene can be easily compressed into tablets with an ordinary tablet machine, and that it can also be readily formed into balls by melting and pouring it into molds. On the whole, *p*-dichlorbenzene seems excellently adapted for use as a moth-repellant, and, as it can probably be bought for less than naphthalene, it deserves to supplant the latter for this purpose. The writer earnestly recommends that pharmacists and manufacturers introduce and push it as a moth exterminator.

The effect of *p*-dichlorbenzene on moths suggests that it may also be of value in exterminating or repelling other pests. Dissolved in benzine or any other suitable solvent and applied as a spray to the joints of woodwork, to clothing which has been attacked, and to other articles, it may prove effective against various insects, bedbugs, roaches, ants, flies, etc., and their eggs or larvae. On account of the inflammability of benzine, it may well be replaced by carbon tetrachloride as a solvent, since the dichlorbenzene is very soluble in this liquid, and also in alcohol, ether, chloroform and benzene. Solutions of *p*-dichlorbenzene may also prove useful against vermin on animals and birds, and as a spray for plants.

It is also possible that the insecticidal and antiseptic properties of *p*-dichlorbenzene may render it applicable in the treatment of certain skin diseases. The writer finds that it is very soluble in petrolatum, lard and many fixed and volatile oils, and large quantities of it can be easily incorporated by simply stirring it into the melted base.

Many other uses for *p*-dichlorbenzene, than those which have here been briefly mentioned, may suggest themselves to those who will give the subject a little thought and carry out a few experiments. The attention of pharmacists and manufacturers has been called to this problem because it is nationally and commercially important that it be solved as soon as possible. It is hoped that those who work on the problem will publish their results, even though they may be negative, in order that the greatest possible good may come of their efforts. The writer will be glad to give such assistance as he can to any one who is interested.

THE CHEMISTRY OF THE HEPTANE SOLUTION.*

BY EDWARD KREMERS.

This investigation has grown out of the phytochemical studies of two California pines, *viz.*, *Pinus sabiniana* and *Pinus Jeffreyi;* and, subsequently, out of the desire to introduce heptane as a solvent for a variety of purposes. One of the uses to which heptane was put was that of a vaporizer of water in moisture determinations according to one of the modifications of the so-called xylene method. In this application it soon became apparent that heptane, like xylene, might serve an additional purpose. Since it is a highly selective solvent, the use of an excess of heptane enables the investigator to test for a variety of substances in a preliminary manner. In order to know what substances might be tested for, it became necessary to acquire a better knowledge of the solubility of a large variety of substances, not only of those found in plants, but of chemicals in general. In order to supplement the range of substances more readily soluble in hot than in cold heptane, *viz.*, those that might be expected to crystallize out upon cooling after the completion of the moisture determination by a knowledge of those that might be expected to remain in solution, an extension of the work originally contemplated had to be undertaken.

While it is quite feasible, in part, to test this heptane solution with the ordinary reagents in aqueous solution, the desirability to test the heptane solution with reagents also in heptane solution soon presented itself. This lead almost immediately to striking results. As a matter of fact, the results soon became so numerous that they threatened to confuse. Hence, a systematic survey was undertaken, which yielded new data at every turn. A mere attempt to enumerate them would require hours.

The peculiar chemistry thus opened up has been designated a "new chemistry." While it is well known that chemists have long experimented with petroleum ether and other mixtures of unknown composition, the heptane used (not the commercial mixture that sails falsely under this flag) is a definite chemical substance capable of an unusual degree of purification. Moreover, it is worth while to work quantitatively with such solutions, hence the determination of the physical and chemical constants of the solutions adds materially to the significance of the study of the chemistry of the heptane solution.

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* An abstract of the subject submitted by the author at the Indianapolis meeting, A. Ph. A., 1917.

PRACTICAL PHARMACY SECTION

ELIXIRS OF THE NATIONAL FORMULARY.*

BY HORATIO C. WOOD, JR., M.D.[1]

Despite the fact that the National Formulary is a legal standard, in many states on a parity with the United States Pharmacopoeia, it has failed to come into general use by the medical profession. This is unfortunate, because there are in it many excellent formulas which should be valuable additions to the physician's armamentarium. It seems to me, therefore, to be well worth while to inquire into the reasons for this lack of confidence in the book, with the idea that in future editions these faults may be corrected so that it shall receive more popular acceptance. This distrust has been engendered in large part by the fact that the book contains so much that is unworthy of an official standard, that physicians in general have a sort of fear of its reliability. While there are a few things in the Pharmacopoeia which might better be omitted, as a whole that work is so excellent that the medical profession in general have an idea that anything in the Pharmacopoeia must be all right. Certainly they have no such feeling as concerns the National Formulary. This is a great pity, because a widely accepted book of the character of the National Formulary would not only be of large use to the medical profession in illustrating elegant modes of prescribing but would, I believe, serve a useful purpose in lessening the employment of nostrums. Therefore, although the criticisms I am about to offer may seem like disparagement they are really constructive and offered with the hope that in the future the National Formulary may be purged of some of these glaring faults. In order to show how a little blue penciling would have improved the present edition of the National Formulary, I have chosen the elixirs as one of the important vulnerable subjects.

As a whole, doctors do not possess a very extensive knowledge of the subject of properly flavoring their prescriptions. Most of them, however, do know that there is an official aromatic elixir and that it has a rather agreeable taste, and many physicians are prone to employ it almost routinely as a vehicle. They do so, not because of the universal suitability of this elixir, but because of their ignorance of other methods of disguising unpleasant tastes. One would have thought, however, that a committee of such eminent pharmacists as those who have charge of the preparation of the National Formulary would have been able to devise an acceptable substitute which might afford an occasional variant. Out of seventy-six elixirs recognized by the National Formulary, fifty-two contain aromatic elixir, and two others, compound spirit of orange. Nor is the aromatic elixir by any means always the most successful flavor which might have been chosen. I remember well a very interesting paper by Mr. Beringer on the value of vanilla to disguise the taste of bromides, and I presume it was this contribution of Mr. Beringer's which led to the recognition of the compound elixir of vanillin. It seems a strange whimsy of fate, therefore, that not a single one of the elixirs of the bromides contains any vanilla. We have the elixir of ammonium, calcium, lithium, sodium, and potassium bromide, all of them flavored with syrup and aromatic elixir.

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* Read before Philadelphia Branch A. Ph. A., March meeting, 1918.

[1] Professor of Pharmacology and Therapeutics in the University of Pennsylvania.

While on the subject of the bromides, attention might be called to the absurd and inconsistent proportions which these elixirs contain. The elixirs of ammonium, calcium, and lithium contain $8^1/_2$ percent of active ingredient. The official dose for the first two of these is given as one fluidrachm, so that the patient would receive five grains of the bromide at a dose, which is a quantity too small to have any appreciable influence. The elixir of lithium bromide contains the same quantity of active ingredient—in fact, when we allow for its lesser atomic weight it contains actually a larger amount of bromide—and yet the dose is given as two fluidrachms. Still more ridiculous in inconsistency is the elixir of sodium bromide, which contains $17^1/_2$ percent as opposed to $8^1/_2$ percent in ammonium bromide and yet is given in twice as large dose.

While on the subject of dosage and to show the total unsuitability of aromatic elixir for some purposes, may I call attention to the elixir of potassium acetate? This contains approximately five grains of potassium acetate in a fluidrachm of aromatic elixir and the average dose is given as four fluidrachms, which represents a reasonable but not excessive amount of the active salt. This amount of potassium acetate is often repeated every two hours, which means that a patient would take in the course of one day an amount of alcohol equivalent to four ounces of whisky. In view of the call being made for conservation of alcohol, this certainly seems a wicked waste of ardent spirits, the more so because potassium acetate is often used in conditions in which alcohol is absolutely harmful.

The editors of the National Formulary prepared two elixirs which were practically free from alcohol and then proceeded not to use them. Lithium salicylate is used practically only in the treatment of gout, in which all physicians are agreed that alcohol is injurious, and yet to get an efficient dose of lithium salicylate in the form of the elixir, the unfortunate patient must ingest the equivalent of nearly half an ounce of whisky with every dose.

A COMPARISON OF THE DOSES OF N. F. ELIXIRS WITH THE U. S. P. AVERAGE DOSES OF THEIR CONSTITUENTS.

	Amount in average dose of N. F. elixir.	U. S. P. average dose.
Elixir Ammonii Bromidi	5.1 grains	15 grains
Elixir Ammonii Valeratis	2.1 grains	8 grains
Elixir Buchu	7.5 grains	30 grains
Elixir Calcii Bromidi	5.1 grains	15 grains
Elixir Calcii Hypophosphitis	4.2 grains	8 grains
Elixir Cascarae Sagradae	30.0 grains	15 grains
Elixir Ferri Phosphatis	2.1 grains	4 grains
Elixir Gentianae	2.1 grains	15 grains
Elixir Guaranae	12.0 grains	30 grains
Elixir Lithii Bromidi	10.2 grains	15 grains
Elixir Lithii Citratis	10.2 grains	8 grains
Elixir Pepsini	1.0 grain	8 grains
Elixir Phosphori	$^1/_{60}$ grain	$^1/_{120}$ grain
Elixir Potassii Acetatis	20.4 grains	15 grains
Elixir Potassii Bromidi	21.0 grains	15 grains
Elixir Sodii Bromidi	21.0 grains	15 grains
Elixir Sodii Hypophosphitis	2.1 grains	15 grains
Elixir Sodii Salicylatis	5.1 grains	15 grains
Elixir Terpini Hydratis	1.0 grains	4 grains
Elixir Viburni Prunifolii	7.5 grains	30 grains

I have thought it might be interesting to compare the quantity of the active ingredients in the officially recommended dose of some of these elixirs with the average dose as given by the United States Pharmacopoeia. I have, therefore, prepared a table showing these comparative doses.

I should like to direct notice especially to the elixir of buchu, containing one-fourth the U. S. P. dose; to the elixir of pepsin, with one-eighth the U. S. P. dose; and, on the other hand, to the elixir of phosphorus with double the pharmacopoeial quantity. The latter is especially objectionable not only because one-sixtieth of a grain of phosphorus is a dangerously large quantity but also on account of the difficulty of reducing the dose.

In looking over the group of elixirs as a whole, one gets the impression that less thought has been expended on many of them than many a doctor would give to a single prescription. For instance, such a thing as the elixir of cascara sagrada, made by simply mixing together equal parts of aromatic fluidextract of cascara sagrada and aromatic elixir seems to me to be an insult to the medical profession as suggesting that they have not intelligence enough to dilute the aromatic fluidextract of cascara sagrada, as well as being far from a triumph of pharmaceutical skill. All such simple combinations as elixir of lithium citrate, of potassium acetate, of the various bromides, of ferric phosphate, etc., might much better be left to extemporaneous prescribing where the doctor could adjust the dose to suit the case at hand.

When we come to study the complex elixirs, those which contain several active ingredients, we begin to tread that dangerous ground of therapeutic efficiency, about which there is much difference of opinion. I am not going to say anything about the advisability, let alone the justifiability, of the use of elixir of hypophosphites, of gentian, of corydalis, or of the formates, except to express my personal opinion that they serve no useful purpose, but I must confess that I stand in amazement at the perfervid imagination which could conceive of a pathological condition where such a conglomeration as the elixir of pepsin, bismuth and strychnine could be indicated. This wonderful concoction contains a trace of the digestive enzyme which is killed by alcohol and murdered by a heavy metal, plus a small quantity of a feeble astringent and an infinitesimal amount of a nerve stimulant.

While talking about pepsin, may I inquire what is the idea of the elixir of pepsin and iron, or of the elixir of cinchona, pepsin and iron? The only possible excuse for the elixir of cinchona alkaloids, iron, bismuth and strychnine is the old idea of "the more the messier." Know ye not, brethren, that pepsin is chemically incompatible with the heavy metals and that alcohol destroys its enzymic activity?

Having called attention to a few of the more glaring faults of these elixirs, I am hearing you wonder whether I have nothing in the way of favorable criticism. Yes, I believe that the elixir of bitter almonds, of anise, of vanillin, of eriodictyon and of gentian deserve recognition as flavoring agents. The elixir of phosphorus may also be of service as affording a pleasant means of exhibiting a drug rather difficult to manage. Perhaps the elixir of iron, quinine and strychnine, of terpin hydrate and of compound glycerophosphates might be continued as concession to those who believe that they possess utility and as being rather difficult for the physician to prescribe extemporaneously. The elixir of sodium bromide, of three bromides, of iron phosphate, of sodium salicylate, and compound elixir of black-

berry, and possibly one or two others might, after some modification, be afforded recognition, but certainly both medicine and pharmacy would be vastly improved by deleting at least sixty of these elixirs as being either unnecessary, useless, or absolutely injurious.

ABSTRACT OF DISCUSSION.

CHARLES H. LAWALL: Dr. Wood's paper contains some very interesting and valuable food for thought and some interesting points are brought out. It must not be forgotten that a large number of preparations are in our U. S. P. and N. F. because the physicians prescribe them and there is a consequent necessity for their standardization.

I remember hearing that a very eminent member of the U. S. P. Revision Committee once said that the basis for admission to the U. S. P. should be the amount of use of a product by physicians and that if there were a sufficiently large number of physicians prescribing brick dust, that article should have standards set for it in the U. S. P. It may be interesting to Dr. Wood, too, to know that the eminent authority credited with the statement was Dr. Horatio C. Wood, Sr.

GEORGE M. BERINGER: There is much in this paper that we can approve and I am thoroughly in accord with many of the statements of Dr. Wood. In my experience in the revisions of the U. S. P. and N. F., I have learned that all revision work is largely made up of compromises and in the Committee on N. F. some of the points here presented were discussed, and while my personal views, for example, as to the proper flavorings for bromide elixirs, were presented, the majority of the Committee were averse to making any change in the flavoring.

Human work is always characterized by some inconsistencies and these inconsistencies and errors as much as the progress of medical sciences necessitate revisions of the standard authorities. When the Federal Food and Drugs Act of 1906 was enacted and specified the tests laid down in the National Formulary as the legal authority for N. F. drugs, we were confronted by a rather anomalous situation as the N. F. laid down no tests, as the N. F. III had been prepared without the thought that it was to be made a legal authority. This necessitated a far more thorough revision of the N. F. than had been previously attempted and it must be admitted that the Fourth Edition is entirely different in character and scientific standing from its predecessors, and further, that it will compare favorably with similar formularies of foreign countries and that it well serves its position as a companion authority with the U. S. P. I fear that we have overlooked that all of such works are the results of evolution and the U. S. P. is now the Ninth Revision while the N. F. is but the Fourth Edition. As such it should be compared with some of the earlier revisions of the U. S. P.

In the National Formulary the pharmacist must, as in other matters, follow the physician and the practice of the medical profession in the United States is responsible for the existence of many of the formulas criticised as therapeutically inactive. While this may be so, the committee on N. F. found that these were so extensively used throughout the country that an official formula was necessary. In a prefatory note the Committee distinctly stated that they were not responsible for the therapeutic value of the formulas presented. Their duty was plainly the making of standards and formulas that were satisfactory from the pharmaceutical standpoint. How well they have discharged this duty is of course open to criticism, but the inclusion of formulas, even though they may be, from the viewpoint of the therapeutic experts, errors are faults of the prescribers of such. Possibly no preparation is more frequently prescribed than is the compound elixir of pepsin or as the N. F. III named it Compound Digestive Elixir. Listening to the demands of the class of the medical profession, the Committee eliminated this formula from the revision with the result that we have now no legal authority or standard for a preparation that is prescribed to the extent of many thousands of gallons and by a number of physician outnumbering many times those who were so strongly objecting to the retention even of the improved formula which had been proposed and which had actually been adopted. My personal strenuous objection did not prevent the Committee reversing itself. But what is the result? Throughout the country, a preparation used to an enormous extent, is being dispensed without any uniformity of color, taste, odor, alcoholic content or enzymic content. The N. F. has failed to discharge, in this respect, the very duty that called it into existence, and, more seriously, a

legal standard has been destroyed and substandard goods to an enormous extent have since flooded the country. Who is responsible for these errors? Are they not really caused by the failure of physicians to agree?

Regarding the formulas for the elixirs, I quite agree that these are entirely too numerous and that medical practice should be so planned as to eliminate a number, but the physicians here again must decide which they will discontinue to use. The formula for Elixir of Cascara Sagrada has been referred to; this well illustrates a principle which held in the N. F., namely to frame formulas wherever possible to permit of extemporaneous preparation. The formula adopted is simply a mixture of fluidextract and elixir. This simplified manipulation can surely not be considered objectionable and the formula appears to have proven satisfactory and has well served its purpose of supplying a standard formula that will insure uniformity in compounding of prescriptions for this article.

Regarding the basic elixirs of the N. F., the committee had in mind two facts, namely the necessity for many medicaments of reducing the alcoholic content of the diluent or vehicle and that, at times, patients became tired of one flavoring and although a combination like the compound spirit of orange was generally liked at times a change was desirable. For these reasons they proposed several new elixirs which widened the list of vehicular flavors so that the physician could select the most appropriate and varying in alcoholic strength from 5 percent or 10 percent up to 30 percent in the curacao elixir. The value of the weaker alcoholic elixirs like the Compound Elixir of Almond, the Compound Elixir of Cardamom and the Compound Elixir of Vanillin is beginning to be appreciated by the physicians and will in time become more popular.

The question of dosage has been raised and the posology of the N. F. has been criticized. With equal force these comments could have been made applicable to the U. S. P. Following the example of the U. S. P., the N. F. has adopted the plan of stating the average doses. Even the word used "*average* dose" was capable of several constructions. Moreover, physicians, whose special function it has been to determine the official statements regarding dosages, could not agree and many inconsistencies exist in the statements of these in both the U. S. P and N. F. As a matter of fact, the doses stated in the National Formulary have been supplied by a physician who has rendered this valuable assistance on a purely medical matter to the N. F. Committee.

J. W. ENGLAND: I believe with Dr. Wood that some of the formulas in the National Formulary are therapeutically illy balanced, but their number is small. The book, as a whole, is the result of years of clinical experience by thousands of successful physicians. Like Topsy, many of the formulas "just growed up." They were originally physicians' prescriptions, gradually acquired a local reputation, and then a national one demanding a standard formula. Originating in various sections of the country, formulas of similar compounds were made of a different content of active ingredient in each dose, but such formulas can be readily standardized in the future, now that the National Formulary is a legal authority with standards that can be enforced.

The extent of the use of a drug or drug preparation is, rightly, the acid test as to whether or not it should be officially recognized. A nationally or widely used drug or drug preparation should have a national standard.

The clinician is the man who should say what drugs and drug preparations should be used in medical practice, and he says this through his prescriptions. No stream can rise higher than its source, and the National Formulary should and does most efficiently represent the wishes of the rank and file of the medical profession in this country.

FRANKLIN M. APPLE: At the meeting of the A. Ph. A., held in Detroit, Mich., in 1914, Mr. Beringer in his address as President of the Association, recommended that an epitome of the N. F. IV be prepared, also that a Committee on Propaganda be created to give a great measure of publicity to the new edition of the N. F., especially so to the members of the medical profession.

It is essential to do so as the medical practitioners judge the N. F. IV by their knowledge concerning the N. F. III, which is freely acknowledged to be far inferior to the N. F. IV, which is a book of legal standards that was prepared to meet such application of it. Unfortunately, the treasury of the A. Ph. A. is not overflowing with funds, hence some other source of funds must be sought to carry out the recommendations of Mr. Beringer, which suggestion was finally passed upon favorably at the Atlantic City, N. J., meeting in 1916. This disposition of the matter

was necessitated by the action taken by the Association at its final session at the Detroit, Mich., meeting, where an apparently diplomatic move to dispose of it was taken, with the result that the Council could not make any move to inaugurate a movement to give the publicity of the N. F. IV that its superiority over the N. F. IV warrants.

Possibly the A. M. A. may have facilities at their command which they will offer upon solicitation of the A. Ph. A. officials, whereby the desired publicity for the N. F. IV can be obtained. I make this suggestion for whatsoever merit it may contain.

PRACTICAL DRUG CONSERVATION.*

BY AMBROSE HUNSBERGER.[1]

The question of conserving drug store supplies during a national war crisis such as the one through which we are passing at the present time would seem to demand the most profound consideration and unflagging persistence of the practicing pharmacist in its solution. It is peculiarly a problem for the pharmacist, inasmuch as he ought to be in the best position to recognize the limitations which will maintain drug conservation within the bounds of common sense without sacrificing efficiency, and he should further be able, by virtue of his practical experience, to determine the line of least resistance to be followed in order that the most helpful results may be achieved in the shortest possible time.

When we stop to consider the close relationship of the pharmacist with the public, we are readily able to recognize his obligation in that direction, and it becomes apparent that whatever he can do in the way of curtailing the communal encroachments involved in the practice of his calling, should be done without the slightest delay. Of course, the thought suggests itself concerning a reciprocal obligation on the part of the public. If it is not a recognized principle now, it will be, probably soon, that many things which are considered indispensable necessities under normal conditions of living, become distinctly non-essentials, if not positive luxuries, during periods of stress and strife. This principle is quite as applicable to the production of drug supplies as to that of any other commodity consumed by the public, and so applied, means relegating to the back top shelf, for the period of the war, many of the "elegant pharmaceuticals" and nostrums, some of which are said to make therapeutic efficiency a secondary consideration at best. What if the tonic elixir does appeal a little less to the eye, nose, and palate, or the cough syrup is only half as cloyey, or the stomachic loses a part of its alcoholic tang, and the favorite digestant temporarily foregoes its emulation of the far-famed cordial of the Benedictine monks—the esthetic must sacrifice itself on the altar of practicability, and it is reasonable to presume that our loyal public will accept its obligation in the matter of conserving drug supplies, which are difficult to secure, when it is made clear that the heaviest demand upon the restricted substances is created by the effort to appeal to its finicky palate.

As regards the problem before us, it may be said that practical conservation in the drug store includes restriction in the use of many articles which under normal conditions are used in enormous quantities without any special thought being given to the availability of future supplies. A brief list (excluding substances employed

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* Read before Philadelphia Branch, A. Ph. A., February meeting, 1918.

[1] President Philadelphia Branch A. Ph. A., 1917–1918.

in the manufacture of galenicals) includes bottles, jars, tins, glass and paper boxes, paper and metal caps, extra wrappers, outer cartons, special seals, etc., some of the latter are designed to provide greater security of contents, but perhaps most of them calculated to lend an air of distinctiveness to the package—a commendable procedure normally but one that should be eliminated in war time. Conservation of containers may be practiced by reducing the variety of sizes in bottled or boxed substances, since in most instances the public will adjust itself to a small emergency package intended for immediate use and a larger so-called family size for continuous use. This would do away with the myriad of intermediate-sized packages of household drugs and chemicals, toilet articles, etc., and would release a large volume of paper, glass, and tin containers, allowing the material and labor required in their construction to be used for more urgent purposes. Where is the need of offering cold cream in four sizes, or talcum powder in two sizes of four odors each, or skin lotions and creams in 25 cent, 50 cent, and $1.00 sizes? Why not, as regards the latter, eliminate the medium size; or still better as a war measure, retain the medium size and release the other two? In other words, instead of applying the old maxim about making "two blades of grass grow where one grew before," reverse its principle and paraphrase it to have "one bottle blown where two were blown before" and apply the principle to each detail of pharmaceutical practice. To be sure, this may not seem to accomplish a great deal in the way of conserving the resources of our country when viewed from the individual standpoint, but if we stop to consider that fifty thousand pharmacists throughout the country can put the plan into operation within a very brief period, the potentialities of the suggestion become more apparent.

While the shortage of materials needed for the manufacture of containers and other drug store accessories is serious in itself, it is second in importance to a consideration of ways and means of curtailing the use of substances which directly affect our supply of food, munitions, and essential medicinal substances. Chief among these may be mentioned alcohol, glycerin, sugar, and certain vegetable drugs and chemicals.

The control of these supplies is perhaps best discussed by a classification of methods, as follows:

Conservation by elimination,
Conservation by substitution,
Conservation by coöperation of medical profession.

In the first classification is included the suggestion above outlined as regards containers, etc., and also certain remarks to follow under the last classification.

Conservation by substitution presents several angles, *viz.*, the substitution of sweetening agents such as honey, glucose, etc., for syrup, and the use of saccharin for the same purpose, and the substitution of glycerin for alcohol, syrup for glycerin, aromatic waters for syrup, etc. The first angle does not appear to accomplish much more than to shift the burden from the right hand to the left, inasmuch as either or all of the substances suggested as sugar substitutes are equally as adaptable to domestic use and should therefore be left available for that purpose. In the second angle it may be said that the judicious substitution of saccharin as a sweetening agent for medicinal substances is perhaps permissible in some instances because this substance it not fitted for indiscriminate use in food products. The third angle of the proposition is discussed later.

Conservation by coöperation of the medical profession appears to offer the solution that promises to achieve the quickest and most beneficial results. Since the art of pharmacy exists primarily for the purpose of supplying the needs of the sick as seen through the eyes of the medical profession, does it not seem feasible and proper to ask coöperation of that body in the campaign for conservation of drug supplies, and can there be a lurking doubt that the coöperation asked for would not be granted, enthusiastically and freely. It is probably safe to assume that the medical profession would welcome any suggestion which might point a way for them to still further advance the interests and safeguard the physical welfare of the citizens of our country.

The best reason for this assumption of coöperation rests upon the fact that the medical profession of our country has outstripped any other single body of citizens in its devotion to our country's cause in the present war. Medical practices developed by years of application, lucrative incomes which they yielded, near realization of ambitions for professional advancement, fond domestic and social ties, assurance of comfortable futures—all were relinquished promptly and unselfishly by thousands of our medical practitioners when the call came and they placed their abilities and energies unreservedly at the disposal of our Government. To make such acknowledgment of the splendidly patriotic attitude of our medical men, in and out of the service, is directly related to our discussion, and were it pure digression, it would still be entirely pardonable because one would have to be churlish, indeed, to have enjoyed the cordial friendship of many of these manly men and fail to fully and freely commend the fine quality of their citizenship.

Assuming, then, the patriotic coöperation and receptive attitude of the medical practitioners of the United States in the matter of conservation, it becomes incumbent upon the pharmacist to furnish the information that comes to him in his daily practice regarding fluctuations in supplies and prices of drugs, to direct attention to declining stocks of certain ones and the possibly increasing supplies of others previously curtailed, to discuss tested substitute products for those unavailable as well as for those which, by virtue of controlled supplies achieve extortionate, if not, prohibitive prices, to advocate reductions in the size of prescriptions calling for scarce drug and chemical products and to encourage curtailment and, whenever possible, entire elimination from prescriptions of such ingredients as syrup, glycerin, and alcohol, singly or in combination, when they serve no more laudable purpose than an appeal to a frivolous or jaded palate.

Personal experiences furnish concrete examples of the practical results which may be obtained through intelligent and (in these times) patriotic coöperation between physician and pharmacist. For years a well-known oculist ordered one grain of his favorite mydriatic in a fluidrachm of distilled water. When informed that supplies of the substance were running low and the cost mounting high, he changed his formula to one-third grain mydriatic in twenty minims of distilled water, with entire satisfaction to himself and his patients and proud of his achievement in conserving two-thirds of his normal consumption of a rare chemical. Another practitioner was in the habit of prescribing from four to six ounces of compound tincture of benzoin, with the directions to the patient to "add two teaspoonfuls to a pint of boiling water and inhale the steam." When informed of the difficulty involved in procuring cer-

tain ingredients contained in this preparation, he reduced his order to *one* ounce of tincture with directions to "add *fifteen* drops to *one* cup of boiling water."

Another changed his favorite combination of ammonium chloride and syrup of lactucarium to one containing an equal dose of the active ingredient in a vehicle consisting of one part syrup and three parts anise water, with no noticeable sacrifice of therapeutic efficiency, according to his statement. Still another has been securing results with a capsule of terpin hydrate and heroin that are quite comparable with those he formerly observed when using the elixir containing the same substances. He is justly proud of the fact that he is a practical conservationist, and the available supply of alcohol, glycerin, and sugar, is automatically maintained.

A final reference to the ready compliance of still another practitioner with the suggestion that an ointment used in rather generous quantity might serve equally well as a protective coating if petrolatum were employed as a vehicle in place of benzoinated lard, points the way to conservation of animal fats.

It is said to be difficult indeed, to attempt to measure the relative difference in therapeutic value between a dose of terpin hydrate and heroin administered in pill, powder, or capsule form, and a dose of the same substance administered in the vehicle provided in the formula for Elixir Terpin Hydrate and Heroin, and it would seem to require equal temerity to attempt to demonstrate that ammonium chloride was any less effective as an expectorant given in cinnamon water than it is when dissolved in syrup of lactucarium, or that pepsin extemporaneously dissolved in compound infusion of gentian lacked any of the digestant qualities ostensibly possessed by the same substance when exhibited in more delectable vehicles. Indeed, the deeper one delves into the question of conservation in the drug store, the more one is inclined to the thought that, while upon the surface the necessity for conserving certain supplies may require more or less readjustment, as a matter of fact, rational therapeutics properly supported by rational pharmaceutical practice, to a great extent solves the problem, and if the rational practice of these two arts shall become a fixed habit, the national emergency that actuated the readjustment will have been, indeed, a blessing in disguise to the practice of pharmacy.

While it is perhaps true that all medical practitioners will not receive this method of applied drug conservation with enthusiasm, or even with cordiality, it is probably a fact nevertheless that an inestimably greater number will be governed by the need of the hour and welcome this additional opportunity to promote the interests of our country by assisting in the conservation of its resources as far as lies in their power.

Space does not permit a systematic arrangement of the most prescribed substances but a suggestion as to the possibilities involved is obtained by a brief reference to but a few classes of substances, with conservation forms of administration.

> Salts of ammonium, potassium, sodium, calcium, strontium can be dispensed in aromatic waters, with or without the addition of from 10 to 25 percent of syrup. Salts of mercury, strychnine, etc., opium and alkaloids, etc., can be dispensed in pill or capsule form; cinchona alkaloids, etc., in capsule pill or wafer; digestive agents in powder or capsule; vegetable drugs, in capsule, powder, pill, or infusion; antipyretics (coal tar) in capsule, powder, or wafer.

This brief scheme is, of course, susceptible of unlimited extension and numberless variations, and from that standpoint may be criticized as being cumbersome and complex. The fact is, however, that the individual medical practitioner is interested only in the remedial agents which he is in the habit of prescribing, and the facility with which he will master a system which will eliminate the restricted substances from his prescription will be governed by his interest in the matter. It is not to be gainsaid that here and there substances exist which, by virtue of their physical characteristics, render imperative the use of alcohol or glycerin in their preparation for use, or the addition of sugar to facilitate administration; but their number is negligible and the quantity of the above-mentioned substances can probably be spared to that extent for pharmaceutical purposes. Under any plan of conservation a portion of these substances will have to be retained for certain pharmaceutical uses, such as solvents, preservatives, etc., if the practice of pharmacy is to continue throughout the war; and the pharmacist's title to this portion is less likely to be questioned if he limits his requirements thereto and refrains from encroaching upon the domestic domain for substitute sweetening agents such as honey, molasses, glucose, etc. It is among the possibilities that domestic need for the latter may even become acute, pending the termination of the war.

The foregoing thought suggests the chief objection to be found with the proposed plan of conserving drug supplies by adopting War Emergency Formulas to be used in place of our official standards. Many of the suggested substitute formulas provide for the use of substances which are no more plentiful nor any less in demand than are the articles they are designed to replace. This plan of conservation seems therefore to be not altogether an unselfish one. The second objection to War Emergency Formulas lies in the cumbersomeness of the plan and the endless complications likely to result from extemporaneous prescription combinations of these more or less untried formulas. The final count against the plan is the fact that if it is to be successfully operated, precisely the same effort will be needed to enlist medical coöperation as in the writer's plan, without securing nearly as beneficial results.

As a concrete example of the potentialities of the conservation plan proposed by the writer, Elixir Terpin Hydrate serves well. Only one four-ounce prescription for this preparation dispensed in each drug store in the United States consumes between seven and eight hundred gallons of alcohol, more than three tons of glycerin, and about one ton of syrup. If the active ingredient of the preparation, terpin hydrate, is administered according to the writer's suggestion, in powder, pill, or capsule form, there is saved to the country a volume of the ingredients composing the elixir proportionate to the number of prescriptions so changed. And therein lies the principle of conservation by coöperation with the medical profession. It presents an obligation for rational pharmacy and therapy. How shall the obligation be met?

WAR EMERGENCY FORMULA FOR SODA FOUNTAIN SYRUP.

BY F. A. UPSHER SMITH.

Although, by taking care, a very large amount of sugar now used in medicines can be saved, a moment's consideration will show that a still greater amount of sugar can be saved at the soda fountain. Without having accurate figures to go by, I should estimate that there are in this country three times as many soda fountains as there are drug stores. On this estimate there are over one hundred thousand soda fountains in the country, and if each one used three pounds of sugar a day, the annual consumption of sugar at the soda fountains would be over one hundred million pounds.

The question is, to what extent can we replace part of this sugar by glucose? I have prepared the following formula for the soda fountain and up to the present have found that it makes a very palatable drink with the various fruit flavors, chocolate, maple, etc.:

Granulated Sugar.....$4^1/_4$ pounds
Liquid Glucose.....$2^3/_4$ pounds (or 1 quart)
Distilled Water.....sufficient to make one gallon

Mix in pan, raise to the boiling point, stir until properly mixed, then strain into a bottle; when cold, cork and keep in a cool place.

The specific gravity of this syrup is 1.291. It is, therefore, lighter than U. S. P. syrup and is less sweet. But soda fountain syrups have always been made extremely sweet, if not too sweet, and it is possible, after a time, that a less sweet syrup will be more in favor through the gradual weaning of the people from their previous use of an excess of sugar.

It is impossible to say at this time what will be the keeping properties of this syrup; as far as I can judge, it will not keep so well as the official syrup. On this account it would be well, in trying it out, to make only sufficient for a few days, at the most for one week at a time, until its keeping properties have been well tried out.

This formula, as it stands, will save 44 percent of the sugar used at soda fountains, substituting for it a sweetening substance which has already been very largely used in candies and which in recent months has been used to a greater extent than formerly in the manufacture of ice cream.

It would not seem objectionable from any point of view to use glucose, because ordinary cane sugar when ingested passes through the glucose stage in the stomach before it is assimilated.

It is desirable that this formula be tried thoroughly in a small way in a large number of soda fountains so that the experience of many may help to improve it. At a time like this when sugar is admittedly scarce and when the homes are being denied their usual allowance of sugar, the soda fountain proprietors of this country are in a position to be of direct assistance to the whole population as well as to our Allies.

Now is the time to act. Try out this formula, improve it if you can, and do your best to use as little cane or beet sugar as possible at the soda fountain during the remainder of the war.

Do not put off a trial of this formula. Act now. If you do not, you are not a true patriot.

PARAFFIN FILMS AND OIL DRESSINGS.*

BY WILLIAM J. BONISTEEL.

The war has brought out a number of new things which are of great interest to pharmacists. The value of the Carrel-Dakin solution is well known while the new method of treatment of burns by paraffin films and oil dressings is not so generally known. The history of paraffin films no doubt dates back to the first use of carron oil for burns. We know that in this treatment the action and principle is superficial, merely keeping the affected parts free from direct contact with the air. Recently it has been found that a similar action is obtained through the use of thin films of paraffin which, when applied to the skin, offer the maximum of protection to the burned areas or exposed tissues. In addition to protecting the skin the use of paraffin films offers certain other advantages, *viz.*, ease of removal as well as acting as a sort of scaffolding for feeble granulations.

Recently there has appeared on American markets a French preparation, called "Ambrine," of secret composition. Some very sensational reports have been circulated relative to its marvelous properties. In this country, as was to be expected, certain proprietary preparations of secret composition have also appeared upon the market, all more or less alike in composition and the principle of action the same. If the principle of the films is a good one, the question arises: are the above named preparations the best? Being of secret composition we know of no place to start to improve them. Therefore we have to start in with paraffin and work on them as we go along.

The object of this paper is to show the method of manufacture and the simplicity with which they may be employed. The most important work in this country on the paraffin films is the work of Dr. Torald Sollmann,[1] of Western Reserve University, who has carefully investigated the subject and reported his results. The films should be simple and consist at most of not more than two ingredients so they can be prepared independently and if possible extemporaneously by any pharmacist and thus be available to any physician or surgeon who cares to try them. In working with films experimentally it is advisable to refrain from adding any deodorant, antiseptic or coloring matter since the first step should be the suitability from a mechanical standpoint. After suitable types are found then it is an easy matter to modify them by such additions as one deems necessary.

The melting point of paraffin films should not be lower than 48° C. nor more than 53° C. Within this range the melting point is immaterial, it being well to bear in mind that the harder the wax the more firm the support, while the softer ones are more soothing. The ductility or resistance of a film against stretching may be determined by comparative tests. Pliability or resistance to fracture on bending is important also. The more fragile films will break at a relatively high temperature while the more plastic films can be bent at a relatively low temperature.

General methods of preparation: Paraffin alone is seldom used since it easily crumbles. Mixtures of paraffin and related mixtures are generally used. Such

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* Read before the joint meeting of the Detroit Branch of the American Pharmaceutical Association and the Prescott Club of the College of Pharmacy of the University of Michigan, February 14, 1918.

[1] See June 1917, issue, p. 555.

substances have the property of giving the film their elasticity and durability. The mixtures are prepared by melting the ingredients on a water bath, after which the mixtures are heated to 145° C. for sterilization. After the preparations are melted on a water bath a teaspoonful of melted wax can be poured upon the surface of water at the temperature of about 40° C. This makes very satisfactory films suitable for small area. For larger sheets a piece of plate glass can be used which has been warmed in a water bath to a temperature of about 40° C., then melted paraffin is poured on the glass and spread with a hot spatula, then immersing the plate immediately into water at a temperature of about 40° C., the film softens and then can be lifted off with a spatula. However, any method that will yield satisfactory films can be employed.

The melting-point determination can be carried on by the U. S. P. method or any other melting-point method which yields satisfactory results. Hardness can be determined by a comparative method, *viz.*, by seeing which cake will indent the other. The strength can be determined by immersing them in a water bath of 38° C., kneading and pulling, noting their coherence, etc. The temperature at which the film breaks can be determined by the same method. At high temperatures the films can be doubled without breaking. This temperature varies for different films. The lower the temperature at which the film begins to break on bending or pulling the greater is the pliability or ductility. It is quite desirable that the film should have a low melting point and thus remain pliable at a low temperature. Clinical trials will introduce new conditions so that the usefulness of the various preparations cannot be judged altogether from physical results. The cost is relatively low. Paraffin, the main ingredient, is at present about 20 cents a pound. Dr. Sollman has made a very extensive classification and divided them into five large classes arranged in the order of hardness, giving a number of formulas under each class in the order of preference. However, for this paper I will take but one of each class.

Class 1.—Simple paraffin. Any suitable brand on the market will do, the softer varieties being preferred. It would be well to experiment with many of the makes on the market. The membranes detach beautifully and it seems very promising, except that it is very brittle and crumbles easily. This should be used where a very stiff film is desired.

Class 2.—Paraffin wax and related mixtures, consisting of about 90 percent of paraffin and the balance can consist of resin, spermaceti and stearic acid. The proprietary mixtures usually belong to this class.

Class 3.—Paraffin-asphaltum mixtures. These are more pliable, more adhesive, and can be made into thinner films. Whether advantageous or not is open to question. Paraffin and asphalt do not form perfect mixtures, hence must be stirred. Ten percent of asphalt varnish is mixed with the paraffin but since the composition of asphalt is complex no further experiments were made.

Class 4.—These are paraffin oil mixtures and the most promising is the mixture with the addition of 10 percent oil of theobroma. Then comes liquid petroleum and olive oil. Venice turpentine and castor oil do not seem to yield good films, although their application might be desirable. As high as 20 percent of cacao butter and the same percent of olive oil is mixed with paraffin. These films

being somewhat emolient, would be perhaps desirable in the early stages of treatment.

Class 5.—Paraffin and petrolatum mixtures. They are somewhat different, being very soft, greasy and crumble easily. Ten parts of paraffin and two parts of petrolatum form weak but manageable films. On very sensitive surfaces this might be desirable.

Application to the skin: The series of preparations were applied to the skin in the same manner in which they would be used clinically. A strip of skin about an inch wide was painted with the melted wax, on this was laid a very thin layer of cotton, and over this was painted another layer of the wax. The adjacent strip of the skin is now painted with the second preparation, and so on. This is a very suitable method for clinical comparisons. However, in actual practice the whole area is covered with the melted paraffin and covered with a thin layer of cotton and then more melted wax is added.

The preparation and properties of paraffin film mixtures suggests their most important properties from a therapeutic standpoint. Several degrees of hardness might possess advantages under various conditions. Pharmacists should call to the attention of the physician this method of treatment and urge him to use simple preparations of known composition so that results can be compared, deficiencies met and improvement made. Clinical experiences may show the advantages of the addition of simple combinations such as scarlet red, resorcin, eucalyptol, and other healing essential oils.

In the same field of paraffin films comes up the question of the use of paraffin oil on surgical dressings. These are prepared by saturating the gauze with a soft paraffin mixture made by the addition of liquid petroleum, lanolin or stearic acid to paraffin. Perhaps the best results that are on record are obtained by the use of liquid petroleum. The great advantage of a non-adhering surgical gauze is due to the fact that the blocking of the fibers prevents matting from secretion and the non-adherence of the gauze. These gauzes can be easily prepared and can be sterilized with heat after impregnation.

This same principle can be used to make cotton sponges. Demonstration shows that cotton sponges wrapped in oiled gauze absorb viscous fluids much better than when wrapped in plain gauze. The technic of making of absorption tests is as follows: One gramme absorbent cotton as a sponge is wrapped in a piece of gauze 12 cm. square; egg white and egg yolk were used to represent wound discharges. This is placed in a flat bottom pan to a depth of 2 to 3 mm. and in this were placed the sponges previously weighed. Results can be recorded upon a chart and the number of grammes absorbed recorded. The result of a few summaries from a chart based on the above technic is as follows:

1—Sponges made of compressed cotton (cotton can be easily compressed in a letter press) absorb much better than those made of loose cotton.

2—Sponges wrapped in loose-mesh fabric absorb better than those in close-mesh fabric.

3—Sponges covered with gauze impregnated with liquid petroleum absorb better than those with plain gauze.

4—Sponges with cotton absorb better than those filled with powdered charcoal.

The most favorable influence of the oil gauze is explained by the protection that the oil furnishes against swelling of the thread and the consequent obstruction of the mesh.

The above uses of paraffin immediately suggest its use as a covering for bandages. The bandages can be dipped in melted paraffin and applied directly to the wound, this being somewhat analogous to a paraffin film although it differs in some essential respects. The finished dressings can be painted with melted paraffin, the bandages stiffened so as to form a support and this in some cases may take the place of a splint or even a cast. However, it is somewhat weaker and more pliable but has the advantage of lightness. The edges of dressings can be painted with melted paraffin so that bandages do not slide upon themselves. Moisture and dirt are kept out. The fraying that one notices on bandages after being worn a little while can be prevented by coating the edges with paraffin. These bandages can be easily removed with the scissors. The end of a bandage can be sealed by paraffin, doing away with the use of adhesive plaster. Countless other uses can be made of paraffin, such as the coating of labels on bottles. It is hoped that the ideas set forth here will be of service to pharmacists in presenting new ideas to the medical profession and at the same time be a source of revenue to them, not only from a financial standpoint but from the added prestige gained through presenting something to aid suffering humanity in general.

DR. FRANK CRANE'S COMMANDMENTS OF SALESMANSHIP.

9. Think Success.—Success begins in the mind. Why think fifty cents, when it is just as easy to think fifty dollars? Tell success stories, not incidents of failure and hard luck. Radiate prosperity. Feel prosperous. It's catching. Keep your chin up.

10. Be Human.—The reason you are hired to sell goods is that you are a human being. Otherwise your employer would have sent a catalogue. So be a human being, likable, engaging, full of human electricity. For I patronize as a rule the salesman I like.

Selling goods is the greatest business in the world. It takes all there is in a man. You need to know psychology, you need tact, intelligence, self-control, courage, persistence and inexhaustible good humor. It is not a job for a second rater. You simply have to make good or go under.

I admire a good salesman because I never was able to sell anything in my life. But I'm a good buyer.—Dr. Frank Crane.

PRESCRIPTION CLINIC.*

Showing Some Incompatible and Some Unusual Prescriptions.

BY CHARLES H. LAWALL AND IVOR GRIFFITH.

(1)	Sodium Borate	1½ drachms
	Acid Salicylic	1 drachm
	Glycerin	10 fluidrachms
	Syrup to make	4 fluidounces

No matter how this prescription is compounded a chemical change is bound to occur between the sodium borate and the glycerin with the formation of boric acid and sodium metaborate, both of which would be soluble in the menstruum of glycerin and syrup. This reaction is stated to be progressive but is hastened when heat is used in the manipulation.

The thoughtless way of compounding this prescription would be to triturate the solids with the glycerin and add the syrup and dispense the mixture with a "shake well" label disregarding the floating needles of undissolved acid. Two ways of compounding this prescription suggest themselves to us:

In the first, salicylic acid is dissolved in a very small volume of alcohol and the borax is dissolved in the warmed glycerin. The two solutions are mixed and the syrup then added. A perfectly clear solution results.

The other method is to dissolve the salicylic acid in 5 fluidrachms of the glycerin, heated on a water bath and the borax in the rest of the glycerin, also heated. These two solutions are mixed and enough syrup added to measure 4 fluidounces. Both methods produce apparently permanent solutions.

(2)	Quinine Bisulphate	2
	Phenol	1
	Glycerin	4
	Distilled Water	60

Compounded in any manner, strictly according to this formula, a crystalline precipitate is bound to occur after the product has stood a while. This precipitate or rather tufted masses of crystals, on examination, proved to be alkaloidal quinine.

The addition of an excess of an acid which gives soluble salts of quinine, prevents the formation of this precipitate. Lactic acid which lately has been frequently and successfully used in the treatment of seborrhoea seems the logical one to use. Addition of this acid inhibits the production of a precipitate, and while no trial was made with the substitution of dilute alcohol for the distilled water, such a change, it would seem, would also prevent this precipitation.

(3)	Sodium Nitrite	20 grains
	Sodium Citrate	
	Sodium Bromide of each	2 drachms
	Compound Digestive Elixir to make	3 fluidounces

* Presented before Section on Practical Pharmacy and Dispensing, Indianapolis meeting, 1917. Most of the prescriptions were further discussed by the authors, and also by E. A. Ruddiman, W. H. Glover, C. P. Wimmer, L. C. Hopp, Carl Whorton, Louis Saalbach, Frank Schachleiter and R. W. Terry.

Every combination was tried in order to hasten the reaction which occurs in the compounding of this prescription. Effervescence does not totally cease for from 36 to 48 hours. Tests of the mixture after it had stood several days proved the presence of a nitrate, non volatile and volatile nitrites and the turbidity of the product was due to the salting out of the digestive ferments in the elixir.

There is no way, within our ken, of overcoming the incompatibility of this prescription.

(4)	Sodium Salicylate		2 drachms
	Hexam		1 drachm
	Spirit of Nitrous Ether		2 fluidrachms
	Water	to make	2 fluidounces

When this prescription is filled, contrary to expectation, it develops a peculiar brownish black coloration which deepens perceptibly on standing. If the spirit is decidedly acid one may look for crystals of salicylic acid in the mixture. This could probably be overcome by neutralizing the spirit. Another possibility is that nitrosalicylic acid may be formed in the mixture. The hexamethylenamine is apparently unaltered unless such a change will occur after the mixture has stood a while. We have not been able to determine the cause of this development of color.

(5)	Theobromine and Sodium Salicylate	2
	Sodium Iodide	4
	Corrosive Mercuric Chloride	065
	Distilled Water	60

Snap judgment in this particular case is liable to lead one astray. The sodiomercuric iodide formed in the prescription, presumably should, like Mayer's reagent precipitate alkaloids. We are taught however that the dimethylxanthine group, consisting of caffeine, theobromine, and others, are not precipitated by this reagent. Acting on this presumption we accordingly fill this prescription and send it out a clear transparent solution. It is brought back in a day with a white precipitate. This precipitate contains theobromine and mercury. Caffeine citrate in the same combination gives no precipitate. Perhaps we have discovered a new differentiating test between caffeine and theobromine, we shall pursue this subject further but give the example as a warning.

(6)	Quinine Sulphate		1
	Potassium Acetate		6
	Aromatic Sulphuric Acid	sufficient	
	Syrup of Lemon	to make	90

The potassium acetate is quickly dissolved in one-half of the syrup. The quinine sulphate, with the aid of a few drops of the acid is dissolved in the rest of the syrup and the two solutions are mixed. The result is a heavy, bulky precipitate of quinine acetate.

This prescription was compounded in this way, in a certain drug store, and the patient returned it with a request that it be transferred to an ointment box, so that it could be administered with less trouble.

Using simple elixir in place of syrup of lemon modifies the difficulty somewhat, although it does not correct it altogether.

(7) Thymol Iodide..... ½ drachm
Wool Fat..... ½ ounce
Cottonseed Oil..... to make 6 fluidounces

This is a favorite prescription with an eminent Philadelphia physician. He reports several "messes" as the result of careless and thoughtless filling of this recipe.

The proper way and a way that is always productive of perfect admixture is to dissolve the thymol iodide in part of the oil and the melted wool fat in another portion. When the latter is cool the two solutions are mixed and the preparation thoroughly shaken. It does not produce a perfect solution.

(8) Strychnine Sulphate..... ½ grain
Tincture of Digitalis.....
Tincture of Strophanthus..... of each ½ fluidounce

A turbidity at first, and afterwards a precipitate appears on compounding this prescription. Using a fat-free tincture of digitalis avoids this complication to a certain extent.

(9) Glycerin.....
Solution of Hydrogen Dioxide.... of each 2 fluidounces

It was recently stated in one of the drug journals that this combination on standing a few days, developed oxalic acid, that is, the glycerin was oxidized by the dioxide. As a matter of fact the solution which was on exhibition was made some five or six months ago and when tested recently showed no evidence whatever of oxalic acid. Assay developed the fact that the peroxide in the solution still retained its full volume of available oxygen. This is another evidence of what is too often seen in the way of criticism. The graphitic cellulose method of criticising prescriptions is a very unsafe way to attain accurate results.

(10) Sodium Bromide..... 4 drachms
Elixir of Pepsin and Rennin Compound
to make..... 2 fluidounces

After standing a few hours a peculiar turbidity manifested itself in the solution, later depositing as a slimy, gelatinous precipitate. This was probably the rennin and pepsin with impurities salted out by the sodium bromide. The addition of an acid did nothing to prevent this precipitation. As a matter of fact the addition of an excess of ammonia water was the only way whereby the precipitate could be redissolved; and this being destructive of the enzymic action would be impermissible.

It is only the unsightly appearance of the product of the prescription that calls for comment, since it can well be dispensed as it is with a "shake-well" label.

(11) Acetphenetidin..... 10 grains
Quinine Sulphate..... 20 grains
Aromatic Sulphuric Acid sufficient
Syrup of Citric Acid or,
Aromatic Elixir to make 2 fluidounces

There is no incompatibility in this prescription. Notice however is to be taken of the fact that the marked fluorescence which is usually exhibited in this acid solution of the quinine salt is practically absent here. For some peculiar reason acetphenetidin prevents the occurrence of this phenomenon.

(12)	Aspirin		1 drachm
	Potassium Iodide		1 drachm
	Glycerin		4 fluidrachms
	Anise Water	to make	4 fluidounces

As one would suspect there is a fairly quick dissociation of the acid radicals of the aspirin in the product of this prescription due of course to hydrolysis. The aspirin loses its identity breaking up into acetic and salicylic acids, the presence of both of which was proven. The fine display of crystals exhibited in the one product as well as the grape-like form of precipitate shown in the other bottle are salicylic acid. Acetic acid and free iodine are present in the supernatant fluid.

(13)	Potassium Permanganate		20 grains
	Phenol		20 grains
	Glycerin		4 drachms
	Distilled Water	to make	2 fluidounces

Potassium permanganate in the presence of glycerin is immediately reduced to the black oxide of manganese and oxygen is liberated. This nascent oxygen will bring about a change in the composition of the glycerin and the phenol. This change, however, is probably very slow and need not be considered since there is no way of filling this prescription without bringing about the chemical change mentioned. It presents a clear case of an incorrigible incompatibility.

(14)	Quinine Sulphate		15 grains
	Sodium Benzoate		2 drachms
	Distilled Water	to make	3 fluidounces

In the consideration of the proper means of filling this prescription, the use of an acid to assist in the solution of the alkaloidal salt is prohibited since such an addition would only create a new difficulty, that is, the releasing of the insoluble benzoic acid from its combination.

In attempting to fill the prescription we dissolve the benzoate in one fluidounce of water and the quinine salt as nearly as possible in the rest of the water. The two portions were then mixed. The result was the precipitation of the very bright crystal masses of quinine benzoate. The filled prescription reminds one very much of the old time miniature snow storm scene enclosed in a sealed glass bulb that aroused our curiosity in our younger days.

(15)	Sodium Benzoate		3 drachms
	Solution of Calcium Hydroxide	to make	4 fluidounces

Precipitation of the slightly soluble calcium benzoate occurs here and is intensified somewhat the longer the bottle is allowed to stand. There is no way of overcoming this without an impermissible change in the formula. It can be dispensed with a "shake-well" label.

(16)	Strontium Bromide		
	Potassium Citrate	of each	2 drachms
	Distilled Water	to make	2 fluidounces

Quite a peculiar phenomenon occurs here. Dissolving the strontium bromide in a fluidounce of the water and the potassium salt in the rest of the water, then mixing the two solutions produces a precipitate which soon disappears. Shaking the bottle brings it back immediately and on standing a while the prescription looks

more like milk of magnesia than anything else. The insoluble precipitate of course is strontium citrate.

(17)	Menthol	8 grains
	Quinine Sulphate	20 grains
	Phenol	24 grains
	Ichthyol	$2^1/_2$ drachms
	Hydrous Wool Fat	4 drachms
	Castor Oil	10 fluidrachms

This prescription is reported to have given various results in the hands of different compounders and one will not be surprised at this. As the formula stands we can conceive of no way of making a permanently presentable and smooth product.

Substituting 15 grains of alkaloidal quinine for the salt and melting this with the menthol, phenol and ichthyol and incorporating this mixture with the solution of anhydrous (not the hydrous) wool fat in the warmed castor oil gives a permanently presentable and non-granular creamy liquid.

DISCUSSION OF OTHER PRESCRIPTION AND MANUFACTURING PROBLEMS.

The spare moments of the Section on Practical Pharmacy and Dispensing were given over to discussions relating to practical pharmacy:

ENTERIC PILL COATING AND CAPSULES.

W. L. SCOVILLE: An enteric coating for pills must be insoluble in the stomach and soluble in the intestines. Salol would be the ideal coating for this purpose, if it could be applied in an amorphous condition, but as the solvent gets in between the crystals of the salol there is no certainty that the pill will pass the stomach intact.

WILLIAM GRAY: We have never found a better coating than salol, but as Professor Scoville states this is not always satisfactory.

W. L. SCOVILLE: I carried on quite a series of experiments on gelatine capsules treated with formaldehyde several years ago. I found this: that if you take a one percent solution of formaldehyde, and dip the capsules, let them stay in this solution for not more than thirty seconds, take them right out and drain them and dry them, you have a condition that after about two weeks the gelatine has an enteric property; that is, it is insoluble in acid but is soluble in five-tenths percent solution of sodium carbonate. All experiments were carried out at a temperature of 37.5° C., at which they will dissolve readily in an alkaline solution. It looked very promising. I kept them for a year or two years. I tested them every three months, and while they dissolved up nicely in alkali, they refused to go to pieces in acid. They would swell but they would not dissolve. After a year and a half I began to find that the solubility in the alkali was decreasing. In other words, the process seemed to be progressive. The reaction, whatever it is, whether it is physical or chemical, in gelatine, goes on; keeps on increasing. At first it is very weak, and the capsules were not fit to be used for two weeks. Then they were all right for a year. We have used that process at the laboratory for experimental purposes—that is, where we could control it ourselves for enteric experiments.

By the way, Mr. Gray just asked me about using ipecac internally. I would like to state that if he wants to put ipecac in capsules and treat them that way, do not use them for a month, and then see that they are all used within a year, you will then get as good results as you can with anything. In hospital work that is thoroughly practical, but not for commercial work; it is unsafe to place a product of this kind on the market that is only good for a limited time.

PHARMACOPOEIAL AND NATIONAL FORMULARY PREPARATIONS.

R. W. TERRY: About a year ago I prepared some Compound Tincture of Cudbear; recently I had occasion to use some and found the caramel had separated out.

W. H. GLOVER: My experience with caramel of the market is unsatisfactory, hence I prepare it myself and do not experience the trouble indicated by Mr. Terry.

LOUIS SAALBACH: Much of the commercial caramel is not made from sugar but starch. (See p. 495 Vol. III and p. 1510 Vol. IV, JOURNAL A. PH. A.—Editor.)

CHARLES H. LAWALL: I use sodium carbonate in making caramel from glucose.

C. M. SNOW: We have had some trouble in the manufacture of Liquid Petroxolin, but we overcame the trouble by proper heating in a water-bath instead of on a water-bath.

W. H. GLOVER: In making Iodine Petroxolin formerly I found that after standing there would be a separation. I overcame this by using Russian oil.

C. P. WIMMER: Soft Soap, as now made is no longer green, and we have had some difficulty in making a satisfactory product by using the present formula.

LOUIS SAALBACH: I heard of an experience with soft soap which may be of interest. In making it according to the formula and following the directions as printed: "Dissolve 86 Gm. of potassium hydroxide in 100 mils of water in a capacious dish by the aid of heat. Immediately add 430 Gm. of cottonseed oil to the solution, and stir the mixture actively for a few moments. Then reapply the heat and, at first evidence of froth from boiling pour in 50 mils of alcohol, stir actively until the froth suddenly rises;" the mixture took fire and burned the operator who had followed these directions. My experience with this formula is not satisfactory. (Similar expressions came from W. H. Glover, C. P. Wimmer and C. M. Snow.)

C. L. EDDY: The Compound Solution of Phosphates formula calls for more than 1000 mils.

C. M. SNOW: This evidently is an error in the formula and the volume of water should be reduced.

(A discussion of Elixir of Gentian concluded the session. The point discussed was relative to the amount of Compound Spirit of Cardamom in the preparation which nearly all considered excessive.)

CATALYSIS.

D. W. Horn, in the Transactions of the Wagner Free Institute of Philadelphia, Volume VIII, p. 97, states that "contact underlies chemistry." He continues in saying, "Bodies may influence each other at almost incredible distances, but this action is physical, not chemical. Briefly, no contact, no chemical action. In the time-honored generalizations, of chemistry, its 'fundamental laws,' the action of pure substances upon each other was considered without reference to the effects of adjacent bodies. In some few instances, however, the effects of adjacent bodies were so striking as to compel early attention. Until recent years the multiplication of such instances has been slow. Such action or influence of an adjacent body may be covered by the term 'catalysis,' introduced by Berzelius, the famous Swedish chemist, in 1834.

"In 1836, Berzelius compiled all cases known in which, by the presence of a foreign body, a chemical reaction is hastened without the foreign body itself being changed. These foreign bodies thus acting he called 'catalysts.' Historically, catalysis is not a new phenomenon. Processes of fermentation were known to the ancients, and these involve catalysts. In fermentation by yeast, the yeast plant produces the catalyst, or enzyme, as it is more frequently called. In sharp contrast with chemical reactions that, when not catalyzed, proceed at so slow a rate as to produce less than noticeable amounts of products, stand the reactions that are so rapid as to be practically instantaneous. Catalysis, of course, is not concerned with such reactions.

"It is not strictly true that a catalyst is found to be *unchanged* at the end of a catalyzed reaction. It is correct to say that the final products are the same, as they would have been had the catalyst been absent. The catalyst may be rather unmistakably changed, not in amount, but in physical state. Thus the crystalline manganese dioxide used to generate oxygen from potassium chlorate becomes a fine powder, and changes in physical state are known to occur in iron oxide and in platinum used as catalysts in other systems. The amount of the catalyst, no matter how small, seems to remain unchanged. Catalysts themselves may be accelerated or restrained in their rapidity of action. Two catalysts usually have a greater joint effect than either would have singly. 'Promoters' that increase the activity of catalysts are also known. Some substances so completely obstruct the action of catalysts that they have been called 'Poisons.' Enzymes and toxins have their poisons and antitoxins, and the analogy to them is quite close, even in the case of metallic catalysts. Some catalysts seem specific for a given reaction, but many are capable of manifold application, and no general method is known for guidance in selecting a catalyst for a given reaction."

SECTION ON EDUCATION AND LEGISLATION

AMERICAN PHARMACY.*

BY C. T. P. FENNEL.

Every true student of nature believes in a Divine Providence and in his precepts. Human nature as well as mundane have not changed since creation. Virtue and vice, with all the passions engendered by environment, remain as in the beginning and will remain the same to time everlasting. Natural forces determine the essential facts of history. Men of vision may show the way in which these forces are to express themselves, "As you sow the seed, so will you reap."

Let us keep this truism in mind and review our past history. The factors that enter into our discussion are many and are embodied in the great law of nature, the division of labor. Pharmacy and its followers, the colleges, law, associations, boards of pharmacy, the manufacturer, our national standard and the public, all contribute to this national institution, American Pharmacy.

Born and raised in an atmosphere of pharmaceutical endeavor with thirty odd years of experience in the business combined with my modest but sincere efforts in pharmaceutic training justify the privilege of expressing an opinion upon a subject which is touching the vanity of the American pharmacist.

First of all, let us not blind ourselves to facts, let us be honest with ourselves, the public and the Government. Claims of intellectual superiority for our calling avail us nothing. Efficiency must be proven. Can we do so? Are we entitled to recognition in the management of governmental affairs or not? Can we give force to the will, efficiency, courage and capacity to far-reaching plans?

What took place in Cincinnati seventy-five years ago, repeats itself in other centers of activity. Local activity becomes regional and finally national in character. I have been in touch with pharmacy since April 14, 1865, and have been a participant in the changes that have taken place.

Pharmaceutic history reveals the fact that in the early days pharmacy and medicine were under the influence of English thought and customs. It was but natural that such should be the case. Up to the Civil War, there was but little deviation from English thought, customs and practices. German influence was just beginning to manifest itself but became submerged by the natural forces produced as a result of the Civil War. After the Civil War, German influence became a strong factor both in medicine and pharmacy. In the early 70's it was the predominating influence and held its position until the early 80's, when American thought, customs and practices became the natural forces for the essentials of American pharmaceutical history.

EARLY EDUCATION STATUS.

Prior to the Civil War and during the reconstruction period, pharmacy and medicine were under control of truly professional men, broadly educated, not only

* Read before Section on Education and Legislation, A. Ph. A., Indianapolis meeting, 1917.

in their chosen calling but also in science generally, including history, language and literature. Their education represented foreign thought directly and remained under foreign influence. American individuality had not as yet materialized, notwithstanding the fact that the opportunities for the interchange of thought were extremely limited up to this time. The American "melting pot" had as yet not evolved fixed American institutions which form national characteristics. We fail to appreciate this fact, the then existing conditions, and wonder why these pioneers in American pharmacy and medicine held so tenaciously to foreign customs and practices. We wonder why these men kept in touch with European thought and progress and yet were put to their own resourcefulness under environments so vastly different from European. At that time it was the best thought and they recognized the value of the old teachings by the mere force of isolated environment. They builded thereon for a better and higher humanity.

One need but read their history and gracefully acknowledge them as true heroes of American medical and pharmaceutical progress. They fully recognized, as men of vision, their children's shortcomings in the opportunities in acquiring education in the broad sense, such as they had enjoyed upon foreign soil. The American centers where such might be acquired were few and beyond the financial reach of most of them. As a natural sequence, we find the inauguration of a kind of "round table education" involving all branches of the then existing sciences, supported by foreign literature received during very uncertain periods of time. The theoretical education thus imparted, non-compulsory but self-seeking, was under constant surveillance through a system of practical apprenticeship. Idealism so essential to true culture, and refinement suffered, but in its place we find the sturdy practical experience superiority founded upon self and producing national strength. This is clearly manifested by these men of vision in shaping their limited forces to yield the greatest amount of efficiency. They were in touch with every European progress, ready to accept or reject every advance made by methods of verification, observation and improvements. They lacked the means for the interchange of thought and it is only within recent years that we became aware of this fact. We are all too prone to look upon the past under present conditions.

AMERICAN PHARMACEUTICAL ASSOCIATION.

The men of vision realized that the opportunities for the interchange of thought had to be increased and they found the way for the expression of this natural force in the formation of the greatest association aiming at the highest ideals in American pharmacy. Notwithstanding its many trials and tribulations, be it said to the credit of this Association, that it has always maintained its constitutional ideals and at no time has its standard been lowered. Behind it has been the force of will, efficiency, courage and capacity for the preservation of its ideals. I deem it the greatest honor, and every pharmacist, no matter where located, should likewise deem it an honor to belong to this association, the American Pharmaceutical Association. This association is not alone national but also international in character and ranks second to none in the "World's Congress of Educational Institutions."

AMERICAN PHARMACEUTICAL ASSOCIATION PRODUCTS.

"Round table instruction" was succeeded by teaching institutions devoted to pharmacy and the allied sciences so far as they related to the practice of phar-

macy. In the very early period through the 70's these schools succeeded beyond expectation, the "round table instruction" had borne good fruit—a factor which was not sufficiently appreciated at the time. Records of those days prove conclusively that seekers of pharmaceutic knowledge were versed in English grammar; immaterial as to their nationality, they looked up to the teaching institutions of pharmacy as superior to themselves and worthy of the highest respect. They manifested this spirit in all inquiries for information through the channels of sealed letters couched in correct English. This material of preliminary education of "round table instruction," which was the basis of success of the old line pharmaceutical colleges, soon became exhausted and with its loss the educational success of the colleges decreased.

COMMERCIALISM.

The commercial phase in all lines of human activity made itself manifest about this time (early 80's) and likewise left its impress upon pharmacy. The practice of pharmacy as well as the teaching of pharmacy came under the dominion of commercialism. Exploitation of certain products not strictly in the domain of practical pharmacy, such as gelatin-coated pills, pepsin, malt extract, ergotin and so-called "elegant" preparations, was in its infancy but still upon a strictly ethical and hence legitimate basis. The future-seeing men soon recognized the drift of the times characterized as the "age of specialization." The old-time method of teaching in colleges of pharmacy continued, but soon proved to be on a faulty basis. The lack of general education and the lack of practical pharmaceutic knowledge failed in appreciation. Retrogression of discipline in reasoning power in an age of universal education and prosperity was considered an impossibility.

A NEW LINE OF PHARMACEUTIC COLLEGES.

The awakening finally came, but too late to overcome the position gained by commercialism. All efforts now centralized in pharmaceutic training devoted to theory combined with practical technique in the laboratories of the institution. The motive behind the movement shows true honesty of purpose and unselfish devotion to the progress both in the science and art of pharmacy but also short-sightedness in failing to recognize the value of true preliminary training and education.

The demands upon teaching institutions as to facilities, equipment and teaching corps increased tremendously and fostered a commercial spirit more intense than ever and not to the interest of true pharmaceutic education. This led unscrupulous men to the establishment of "diploma mills" and as a result the sincere efforts for higher pharmaceutic education suffered almost beyond redemption. The standard of pharmaceutic education and concomitant preliminary education became lower, cheaper and less secure, and as a sequence we have inherited the common knowledge of inferiority. The abuse of ethical principles affected the manufacture of pharmaceuticals in like manner. Exploitations of remedial agents to the medical profession and to the laity through the channels of the pharmaceutic calling destroyed all confidence once reposed in pharmacy. Intellectual progress in pharmacy became too general to be of any value. Abuse of every principle of common decency brought in the majesty of the law.

Men of education both in medicine and pharmacy visioned the inevitable result and hoped to maintain the welfare, health and happiness of the public by correcting all the evils by legislative restrictions. The intent again was sincere, primarily for the benefit of suffering humanity, but in reality for the restoration of medicine and pharmacy to their former standing. These legislative movements were encouraged by disinterested parties for the benefit of political influence and parties. This is proven by every measure enacted, for the means for the enforcement of acts are vague and lack sincerity of purpose. The enforcement of violations was left to men deficient in education or wholly disinterested and hence without knowledge of any nature pertaining to the practices of medicine and pharmacy; in charge of men forced to ignore moral courage in carrying out the spirit of the law. Measure after measure has been introduced under plea of higher education for the protection of the public, but all have been failures, more or less, for the one and single reason.

Schools of medicine and pharmacy multiplied without the "warrant of long-felt want," notwithstanding the restrictions placed upon facilities, equipment and teaching corps demanded long ago by law in almost every state of the union but opportunely enforced by the commissioner of education of the respective states.

STATE AND NATIONAL EDUCATION COMMISSIONERS

These general educational departments collect data of all kinds that have little bearing upon education. Teaching corps seem to be beyond their jurisdiction; education is a sham and a cheat unless carried on by able, accomplished teachers. The dignity of the profession of the teacher is beginning to be understood; the idea is dawning that no office can compare in solemnity and importance with that of training the mind. Institutions of learning, like human beings, are desirous of recognition, to be something or some one well thought of, and hence these institutions are diplomatic in answering all questions, relevant or otherwise, to the best of their knowledge and belief. Many of the institutions receiving state aid and having many interlocking departments of study, find it convenient to duplicate valuations and thereby show that the money appropriated through general taxation has been well spent.

The attempt of universities to corral students under the pleas of higher education and that of the poor boys' opportunity for education under a lower standard than that required for a university degree has not advanced education, pharmaceutical or otherwise. It cheapens true education and gives the impression of sham. History repeats itself as is shown by the excerpt from *Holinshed's Chronicles 1577:*

> Cambridge and Oxford, two of the oldest institutions of learning in the world, were created by their founders at the first only for poor men's sons, whose parents were not able to bring them unto learning, but now they have the least benefit of them, by reason the rich so encroach upon them. And so far has the inconvenience spread itself that it is in my time a hard matter for a poor man's child to come by a fellowship. Such packing also is used at elections that not he which best deserveth but he that has the most friends, though he be the worst scholar is always surest to speed which in turn will end in the overthrow of learning.

State universities advertise instruction free to citizens of the state, but to my knowledge I know of none where this is true. Careful investigation proves that the expenses of these "free" courses average between $60.00 and $100.00 per

session to the resident students, an intended misrepresentation to the tax-paying public, known for their indifference and lack of study of economic questions affecting their welfare. All these institutions sail under two flags, those students of the university who never become pharmacists and those known as short-course students who do follow pharmacy; the former must be graduates of an accredited high school, the latter need not be; the first receive a university degree, the second do not, but they may get a certificate; the first get a broad education, the second a smatter of knowledge, usually sufficient for a board of pharmacy certificate. The first become representative men while the second seldom do, well aware of their own deficiency. I maintain that these school courses in pharmacy, and for that matter in any other branch of science, have lowered the standard of pharmacy directly and in the estimation of the public mind, indirectly. It is not a question of how good or how poor these courses of instruction are, but the psychological effect upon the human mind. That this effect is not to the interest of pharmacy, not to the interest of the teaching institutions, can easily be ascertained.

PHARMACEUTICAL ASSOCIATIONS.

Pharmaceutical as well as medical associations have discussed in conventions the many problems confronting them, educational and otherwise, affecting their welfare. After separating the many elements bound together, they finally resolve to do certain things or recommend that committees do justice to the recommendations adopted without offering the means for carrying out the contemplated acts. Members fail to recognize their importance as individuals or integral parts of the associations and in the reforms suggested. They fall into the profound but common error of mistaking the beginning for the end of the work. Financial as well as personal support is necessary to every movement and as neither is usually forthcoming, but little is accomplished and that little by a small minority of unselfishly devoted men.

The medical profession, notwithstanding its powerful and highly disciplined organization, has reaped the same experience, though much more successful in legislative movements. I believe a psychological effect to be responsible for this success since they recognized that legislation and resolutions did not cure the existing evils by subsequent action. Up to this period, physicians and pharmacists occupied the same plane of intellectuality and education, neither profession could claim educational superiority although the medical profession enjoyed a higher plane of intellectuality in the minds of the public. Medical men of vision were equal to the occasion and as a result of this vision we have "an exposé of medical education;" an enterprise carefully planned and judiciously fostered and which brought about true medical education; pre-medical education based upon thorough preliminary education, to be followed by the medical education.

Pharmacy has not yet reached this stage of development nor anything near like it, notwithstanding the institution known as the Conference of Teaching Faculties. One need but peruse their report of the annual proceedings and fully recognize the reason of their failure. What avails intellectual power without moral power?

CONFERENCE OF TEACHING FACULTIES.

The motive behind the movement is truly sincere, but the lack of moral courage to enforce the principles of organization has utterly destroyed the efficiency fos-

tering pharmaceutic education upon a worthy plane. The adoption of the National Syllabus without the adoption of the necessary foundation for its comprehension by students of pharmacy, nullifies every effort towards better trained pharmacists. As a fundamental principle, all members of the Conference must abide by the principles of organization without evasion of any kind under any pretext whatever in order to bring pharmacy to a state of governmental recognition. Sentiments of friendship or comradeship must not prevail. We still can remain friends and yet antagonize each other upon economic principles provided we learn to live more by reason and principle than blind sentiment. The Conference stands for high educational qualification and the enforcement of the principles of true higher education upon a uniform and united basis. This Conference should be the intermediary between the colleges of pharmacy and the boards of pharmacy. Those who cannot follow or will not follow the precepts laid down must step down and out publicly.

BOARDS OF PHARMACY.

Boards of Pharmacy were created to curb the activities of "diploma mills" and as such were considered as inspectors of the training performed by the teach-institutions of pharmacy. They have but one duty to perform, namely, to ascertain the fitness of the applicant to the practice of pharmacy. In recent years they have reached out for more power and authority, namely, the supervision of the quality of drugs. We need not discuss the motives that govern this desire or the desirability of such movement. Colleges of pharmacy may train students of pharmacy to assume all the responsibilities incidental to their supplying the public with drugs and medicines of proper strength and quality under the laws of the art and yet such students fail to receive the approval of boards of pharmacy in very many instances. The question is frequently asked why a college-trained student fails and the "quiz compend" student succeeds? It is not an easy matter to place the responsibility. All the factors that make up the pharmacy law of to-day are so closely interwoven that separation of the influencing factors becomes extremely difficult. Foremost, all the various state laws require practical experience in a drug store where prescriptions are filled and this implies that the products entering into the prescriptions, that is, the products of the U. S. Pharmacopoeia, are manufactured in that pharmacy, but unfortunately, this is now seldom the case. The commercial phase dominating all lines of industry reduces to a minimum the production of pharmacopoeial products in a pharmacy proper. Colleges of pharmacy were supposed to rectify this deficiency in manufacturing by a course of laboratory training, but unfortunately, the opportunities for repeated operations for the same product cannot intelligently exist in a teaching institution. Boards of pharmacy fail to recognize this fact which is clearly shown in all state board questions. Questions involving principles of action in the making of pharmacopoeial products seldom appear in the tests and hence the really qualified applicant gets no opportunity to express his fitness and must of necessity fail because he lacks the memorizing faculty demanded by boards of pharmacy as the criterion of fitness.

Some institutions shape their courses accordingly; they may reap a large percentage of successful candidates, but these will never be a credit to pharmacy

nor will they ever make any effort towards a higher and efficient pharmacy. The plea that some boards of pharmacy fail to require or to recognize preliminary education of pharmaceutic training offers no excuse for violating the cherished principles underlying a higher and truer American pharmacy. Colleges of pharmacy and boards of pharmacy are both sincere in their aims, namely, the advancement of the interests of American pharmacy, but unfortunately there is no real coöperation between them. Boards of pharmacy will remain supervisors of colleges, but as such they should go beyond their common functions and mutually interchange suggestions and work in harmony upon specifically agreed lines. The idea that a person is proficient in one state and not in another is simply preposterous. It discredits not alone the pharmacist but also the examiner.

UNITED STATES PHARMACOPOEIA.

Any one familiar with the official text for the practice of pharmacy must admit progress with each succeeding revision. The last or the ninth revision shows beyond question the most advanced progress over all other pharmacopoeias. The standard of identity and purity and the methods of determining purity and strength are so rigid and so exact and based upon the very latest approved methods, that this official text-book becomes worthless to the average American pharmacist of to-day. Is there any valid reason that such a condition should exist? Does the American pharmacist lack the training and knowledge necessary for the comprehension of the pharmacopoeial text or is it only indifference on his part due to a commercial phase? On the other hand, it has been questioned whether certain pharmacopoeial standards, such as the saponification value, iodine value of fixed oils, are safe criterions of purity; that assay methods under pharmacopoeial quantities are not real indices of strength; that outside of a few waters and syrups the pharmacist is restricted to hypercritical limitations not to the interests of the pharmacist nor the practice of pharmacy; that these restrictions are to the benefit of the manufacturer directly. Teaching institutions of pharmacy may devote much time and energy in putting these pharmacopoeial methods to practical application and test in their laboratories but when a spirit of indifference and lack of appreciation pervades the atmosphere of the preceptor, not much interest can be aroused in the student.

The common cry of practical pharmacy and practical pharmacists is fostered altogether too much and under the present status of enlightenment in all science can not redound to the interest of American pharmacy. The practical pharmacist of fifty years ago has no existence to-day. In his place we find the man of "Applied Science." Huxley says:

> Applied science is nothing but the application of pure science to particular classes of problems. It consists of deductions from those general principles established by reasoning and observations which constitute pure science. No one can safely make these deductions until he has a firm grasp of the principles and he can obtain that grasp only by personal experience of the operations of observation and of reasoning on which they are founded.

Shall American pharmacy be pure science as represented by the U. S. Pharmacopoeia or shall haphazard, go-as-you-please methods prevail? The result depends solely upon educators.

THE MANUFACTURER.

The consideration of the manufacturer of chemicals and especially of pharmaceuticals has to my knowledge never been considered as a factor in the plan of pharmaceutical education. He has been ignored altogether, notwithstanding that he has spent millions in furthering the true science of pharmacy. He has searched the world over for crude drugs, determined their value in the interests of humanity by a corps of investigators of recognized ability. Self-preservation is the first law of nature and it is but fair to grant adequate returns to the manufacturer for commercial enterprise and financial sacrifice in his coöperation to the advancement of pharmaceutic knowledge. Rigid methods of purity and identity combined with demands of uniform and definite strengths are undoubtedly to his interest, commercially as well as scientifically. On the other hand, it is commercially and scientifically wrong for pharmacists to buy from the manufacturer in order to put the responsibility of identity, purity and strength upon his shoulders in order to evade food and drug laws. The very act is cowardly and an admission of the lack of confidence in self.

CONCLUSION.

The opportunities for the interchange of thought have become so general and cheap that any one, no matter what his station in life may be, can secure knowledge in any branch of endeavor without much effort. In contrast with fifty years ago, yea twenty years ago, we can discern the vast difference between past and present opportunities. In the past the means of acquiring knowledge were limited, expensive and not of access to the masses. Under the laws of human nature, this fact has awakened the faculties of the mind to appreciation and energy worthy of a fair measure of judgment of the true and false. To-day, for the same reason, this awakening does not take place and hence we need not expect the power of discrimination. Public opinion, the opinion of the masses, has no stability and for that reason is easily moved in every line of thought for the lack of reasoning power. External influences readily sway opinion favorable to-day but discredited to-morrow. Men's thoughts are much according to their inclination, to their learning and infused opinions.

Pharmacy and pharmacists have had more than their deserved share of abuse and hence it is not surprising that opinion is not very flattering to them. The art of thinking justly and strongly is not encouraged and hence the stimulus to intellect, reflection, reason and judgment are wanting. Pharmacy cannot be divorced from commercialism nor is it necessary. The fruits of unity, based upon intelligence accruing from education through reason, observation and experience will exalt both the professional and commercial phase of pharmacy. According to the Scriptures, "Grapes will not be gathered of thorns and thistles." Likewise, "Break up the fallow ground and sow not among thorns."

PROCEEDINGS OF THE LOCAL BRANCHES

CHICAGO.

Prof. Henry Kraemer of Ann Arbor presented a very fine illustrated lecture on "War and Microscopical Research," before the Chicago Branch, American Pharmaceutical Association, Thursday evening, March 14, at the City Club. Members of the Branch, their ladies and friends and a goodly delegation from the Illinois Microscopical Society formed a large and appreciative audience that greeted Dr. Kraemer most cordially.

About one hundred sat at dinner, preceding the lecture, in honor of Dr. Kraemer and as a farewell to Hugh Craig, President of the Branch who has resigned his office because of removing from Chicago to Detroit where he takes up new work.

Testimonials appreciative of Mr. Craig's good work and fine character were presented by Thomas H. Potts, James Crowley and W. B. Day. There was an expression of deep regret at our loss of Mr. and Mrs. Craig, accompanied, however, with an offer of best wishes to them in their new home and social circle.

In the short business session of the Branch, a very able and remarkably complete report of the Committee on Compulsory Health Insurance[1] was read by J. H. Wells in the absence of Chairman Beal. The report recommended that the Chicago Branch of the American Pharmaceutical Association refuse to endorse the standard bill proposed by the American Association for Labor Legislation and, in case such legislation is proposed in the State of Illinois, that the members of the Branch, individually and collectively, take an active part in seeing that the general public, and especially taxpayers, wage earners, and members of the medical profession and of the drug trade shall be fully informed of the dangers of state subsidized compulsory health insurance and of the results that have followed the establishment of such insurance in other countries.

E. N. GATHERCOAL,
Secretary.

DETROIT.

The regular meeting of the Detroit Branch of the American Pharmaceutical Association was held at the Wayne County Medical Building, March 15. Dr. Leschoier, a member of the medical staff of Parke, Davis & Co., gave a very interesting talk on vaccines and antitoxins. With the aid of a stereopticon, the steps in the preparation of these products were shown. The druggists were cautioned regarding the storage of vaccines and antitoxins, which, on account of their extremely delicate nature, must not be subjected to temperatures higher than specified on the containers.

Chas. F. Wendell, Display-Manager of the J. L. Hudson Company, told his audience that, as a class, the druggists' windows were not what they should be in order to make them yield the proper returns. But bearing in mind the points which Mr. Wendell named as the first essentials, Detroit druggists will soon rank as leaders in the art of window decorating. Since quality is the first consideration of a pharmacist, this must be demonstrated in the displays. Mr. Wendell advised that a window appropriation be made, that suitable fixtures and not makeshifts be obtained and that a layout be arranged before attempting to dress a window; change the displays frequently and have everything spotless.

MAY STRAWN,
Secretary.

NEW YORK.

The March meeting of the New York Branch of the American Pharmaceutical Association was called to order by President McCartney in the lecture hall of the New York College of Pharmacy Building on Monday the 11th, at 8.30 P.M.

Fifty-two members were present.

The minutes of the preceding meeting were read and approved.

The Treasurer's report was received and ordered filed.

Member of the Council: Professor Hostmann stated that he had nothing new to report.

Committee on Education and Legislation: Mr. Lehman reported on the proposed change in the Board of Pharmacy laws, shorter hours bill, the Hicks bill, on the new disclosure of formulas bills and on various suits and court decisions. He also reported on the Federal alcohol tax refund and discussed probability that the Workman's Compensation Insurance

[1] See this issue of the JOURNAL under Committee Reports.

would be taken over by the state. After some discussion it was ordered accepted.

Progress of Pharmacy: Dr. Diekman brought in a lengthy report and abstracts on the following topics:

Manufacture of Potato Starch from Partially Decomposed Potatoes.
Use of Straw for Manufacturing of Gas.
Detection of Foreign Oil in Castor Oil.
Detection of Chlorates in Presence of Hypochlorites.
Detection of Toxicity of Cottonseed Products.
Production of Zinc Perhydrates.
Colorimetric Methods of Determining Morphine.
Reaction for Nitrils.
Composition of Thymol Mercurial Acetate.

Considerable discussion followed the reading of this report, which was ordered accepted.

Special Committee: The Committee on By-Laws brought in their report. After considerable discussion some changes in amendments of the by-laws were adopted. The Committee was then discharged with the thanks of the Branch. By motion, regularly moved, seconded and carried, the Secretary was empowered to have printed copies of the constitution together with the new by-laws as well as a list of members of the Branch and to send each member of the Branch a copy of the foregoing. It was now moved, seconded and carried that the President appoint the members of the Committee on Legislation and Education to act as delegates to go to Baltimore and Washington to attend the conference and hearing on the Edmonds Bill.

New Business: The Secretary read a short paper outlining a plan for a "Pharmacy Honor Medal"[1] and suggested that the Branch consider it. It was then moved, seconded and carried to consider the proposition and the following committee was appointed: Hugo H. Schaefer, *Chairman*, Jeannot Hostmann, Caswell A. Mayo, J. L. Mayer and Fred Nitardy.

A paper was read by Prof. Jeannot Hostmann on "Legislating for the Pharmacist." The speaker related many interesting and amusing anecdotes of his experience with legislatures, etc.; considerable discussion followed. A rising vote of thanks was extended to Prof. Jeannot Hostmann.

HUGO H. SCHAEFER,
Secretary.

A PHARMACY HONOR MEDAL.[2]

We have all heard of the "Perkin Medal" and of the "Nichols Medal." These are medals given annually by the American Chemical Society and by the Society of Chemical Engineering as the highest mark of honor for work done or things accomplished by any individual in the respective branches of science which these two great societies represent. Should not Pharmacy also possess a similar method of showing its appreciation for any signal service performed in the interest of American Pharmacy? With this in view I would suggest the following plan:

That a gold medal or a bronze medallion suitably named be awarded annually to the man or woman who has done most for American Pharmacy during the preceding year or whose efforts during a number of years have culminated to a point during the preceding year where the result of these efforts would be considered as being the most important and advantageous for American Pharmacy.

That the New York Local Branch of the American Pharmaceutical Association take the matter in hand to the extent of devoting one meeting annually to the presentation of this medal.

That in order to make the presentation of this award permanent and perpetual, a fund of $1000.00 be created either by donations or by means of arranging for a sinking fund, this fund to be invested in gilt edged stocks or bonds, preferably Liberty Bonds and the interest thereof to be used to defray the expense of the award.

That the medal be awarded by a standing committee consisting of all the past presidents of the American Pharmaceutical Association, and in case the number of living past presidents is less than five, the senior past vice-presidents of the American Pharmaceutical Association are to be drawn upon in sufficient number to create a committee of five. That no bar be placed as to the candidate's profession, or kind of work accomplished.

That the medal be presented by the senior past president of the Local Branch mentioned above and taking this meeting in hand.

That the consent and support of the American Pharmaceutical Association be officially obtained to give the presentation of this medal at the Local Branch meeting a national aspect

[1] See immediately following the report of this meeting.

[2] See action of New York Branch, A. Ph. A., this issue of the JOURNAL.

and as coming from the American Pharmaceutical Association and not merely from the Local Branch.

In conclusion, I would like to say that of course the criticism will be brought up that the presentation of such medal ought to be performed at the annual meeting of the parent organization rather than at a Local Branch meeting. To this I would like to point out that such a presentation could only represent a small part of the day's programme at the Convention, while at a Local Branch an entire evening would be devoted to it.

Since our Branch is the largest and fastest growing branch, since we are located in the largest city as well as for many other reasons, I would suggest that this plan be taken up for consideration by the New York Branch.

HUGO H. SCHAEFER.

PHILADELPHIA.

The regular monthly meeting of the Philadelphia Branch of the American Pharmaceutical Association was held at the Philadelphia College of Pharmacy Wednesday evening, March 19, with the president, Ambrose Hunsberger, in the chair.

Following the regular order of business, reading the minutes, election of new members, etc., Dr. Horatio C. Wood, Jr., read a very interesting paper on "The Elixirs of the National Formulary IV,"[1] in which he pointed out in his own inimitable style the faults of most of the elixirs and the merits of a few. He particularly deplored the lack of uniformity in the doses of the medicinal elixirs and also the uselessness, as he termed it, of many of the formulas given. "It is an insult," said Dr. Wood, "to the intelligent physician to bring into an official book, as simple a formula as the elixir of cascara, which is made by just mixing together the fluidextract and aromatic elixir. An elixir, containing such antagonistic agents as strychnine, bismuth and pepsin, has no place in an official and, presumably, scientific book and the sooner such preparations are deleted, the better it will be for the reputation of the National Formulary."

Professor LaWall opened the discussion on Dr. Wood's paper by quoting the senior Dr. Wood's statement that "it is the duty of framers of pharmacopoeias and other official books to maintain standards for anything which a physician might have occasion to use in his practice, even if it has no more value than brick dust."

Mr. Beringer then ably answered Dr. Wood's statements and said, in part, that the National Formulary was compiled to answer a specific purpose, to establish a uniformity of standards for the less widely used preparations and drugs. Pharmacists could not be directly charged with the lack of uniformity in the doses of the various medicinal elixirs. Mr. Beringer also pointed out the fact that the comparison of the N. F. IV with the U. S. P. IX was not quite fair, when one had the advantage of eight previous editions and the other only three.

Mr. England stated that the paper was well worthy of being submitted to the Chairman of the Committee of Revision of the N. F., and made such a motion, which was adopted. He also moved that the Branch extend its thanks to Dr. Wood for his constructive criticisms and his very helpful remarks.

F. M. Apple deplored the lack of intelligent propaganda among physicians, to acquaint them with the good formulas of the N. F. and U. S. P., and stated that the parent body was derelict in its duty in not taking the initiative in this matter.

Coinciding with Mr. Apple's views, J. K. Thum then made a motion that a committee be appointed to report on the desirability of commencing propaganda work among physicians. Professor Gershenfeld seconded this motion, which was subsequently adopted and the president was authorized to appoint a committee of three to consider the matter.

The other contribution of the evening was a paper by Prof. H. W. Youngken, on "Wafer Ash Bark as an Adulterant for Euonymus (Wahoo Bark)." Despite the technical character of the paper, Professor Youngken presented it in an understandable and interesting manner and it was afterwards very briskly discussed by Dr. Lowe, Messrs. Beringer, Thum and Griffith. The lantern slides which were shown added much to the value of the paper.

The Secretary then read the report of the Committee on the Endorsement of the Edmonds Bill, and the Branch endorsed this bill or any other measure that would give pharmacy the professional standing to which it is rightfully entitled.

Professor Cook, in presenting the report of the pharmaceutical section of the committee on ways and means of conserving drugs and

[1] See this issue of the JOURNAL.

supplies, suggested that the next meeting of the Branch be dedicated to a thorough consideration of this question, when the committees would be able to present more comprehensive reports. Professor LaWall made such a motion and it was duly seconded and adopted.

The Committee on Nominations then presented their report which was accepted and the nominees were thereafter elected. President Hunsberger relinquished the chair which he had so ably filled during the past year and Mr. McNeary assumed his new duties. The thanks and appreciation of the Branch were extended to the retiring President whose year of administration had been particularly successful from every standpoint. The new officers and committees follow: W. W. McNeary, *President;* F. P. Stroup, *First Vice-President;* K. F. Ehmann, *Second Vice-President;* Ivor Griffith, *Secretary and Treasurer; Committee on Fraternal Relations*—F. M. Apple, *Chairman,* F. E. Stewart, J. K. Thum; *Committee on Practical Pharmacy*—J. C. Peacock, *Chairman,* E. Fullerton Cook, J. R. Minehart; *Committee on Membership*—R. P. Fischelis, *Chairman;* Ambrose Hunsberger, L. Gershenfeld.

The meeting was attended by over 60 persons.

IVOR GRIFFITH,
Secretary.

COUNCIL BUSINESS

A. PH. A. COUNCIL LETTER NO. 12.

PHILADELPHIA, PA., MARCH 16, 1918.

To the Members of the Council:

Motion No. 19 (Election of Members; applications Nos. 69 to 84 inclusive) has received a majority of affirmative votes.

The following report is presented:

Report to the Council of the American Pharmaceutical Association:

The special committee of the Council which was appointed at Indianapolis for the purpose of determining the situation at the United States National Museum relative to the housing of the collection of historical pharmacy has conferred with Mr. F. L. Lewton, Curator of Pharmaceutical and Medical Exhibits, and desires to report that adequate provisions exist in the National Museum for the custody and display of specimens illustrative of historical pharmacy.

The National Museum would prefer, whereever possible, that the specimens be offered as outright gifts, but where this is not desirable or feasible, it will gladly accept as loans or deposits, valuable material on the subject of pharmacy, materia medica, and the history of pharmacy. It is customary for loans to be accepted with the understanding that they will be left undisturbed for a year or more, while deposits are usually made for a longer indefinite period. The Museum cannot bind itself to permanently install any exhibit, or to keep any certain assemblage of specimens always exhibited to public view. It can, however, agree to safeguard them and keep them available for examination and study whenever desired. In order to avoid duplication of material, the Museum would request that all exhibits offered it as gifts, loans or deposits, be first arranged for by correspondence, and the submission of a list or inventory giving an idea of the character and quantity of the material offered.

The committee believes that any property of the Association placed in the National Museum will receive adequate care and therefore recommends to the Council that the collection of historical pharmacy or whatever part of it as may be deemed advisable be placed in the National Museum as a gift or loan from the American Pharmaceutical Association.

Respectfully submitted,
W. W. STOCKBERGER,
H. C. FULLER,
S. L. HILTON.

A motion to approve this report is in order.

The following communication has been received from E. G. Eberle:

"I am in receipt of the following letter from the Smithsonian Institute, United States National Museum, Washington, D. C.:

"In exchange for publications of the United States National Museum, a list of which is enclosed, may I obtain for the Library Vols. 1–5 and Nos. 1–7 of Vol. 6 (1917) of the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, which are wanted to complete the set? In return I shall be pleased to have sent you such of a selection of the available Museum publications as you may desire.

(Signed) By authority of the Secretary."

"In my opinion we should grant this request and have a full set of the JOURNAL in the Library of the Smithsonian Institute. I therefore move

that the request of the Smithsonian Institute be granted and that a complete set of the JOURNALS as requested be donated and that the Editor be authorized to forward these copies to the Smithsonian Institute.

"The motion is seconded by William B. Day."

Do you favor the above motion? It will be regarded as *Motion No. 20* (*Request of Smithsonian Institute for Journals*).

Motion No. 21 (*Election of Members*). You are requested to vote on the following applications for membership:

No. 85. A. P. W. Twombly, 721 Huntington Ave., Boston, Mass., rec. by E. G. Eberle and John G. Godding.

No. 86. William George Ungerer, 124 W. 19th St., New York, N. Y., rec. by Hugo Kantrowitz and Francis B. Hays.

No. 87. Judson H. Sencindiver, 48 Seaton Place, N. W., Washington, D. C., rec. by S. L. Hilton and Redmond Mayo.

No. 88. Samuel L. Antonow, 1360 S. Springfield Ave., Chicago, Ill., rec. by Charles Orr and Wm. B. Day.

No. 89. Hugo R. Glissman, Palm's Hotel, Des Moines, Iowa., rec. by A. C. Heidenreich and William B. Day.

No. 90. Roger L. Carson, P. O. Box 185, Eagle Pass, Texas, rec. by E. G. Eberle and C. A. Duncan.

No. 91. Abraham Rabinowitz, 931 Fairmount Ave., Philadelphia, Pa., rec. by Edwin M. Boring and E. G. Eberle.

No. 92. C. D. Johnson, Brainerd, Minn., rec. by Chas. E. Matthews and Wm. E. Burke.

No. 93. Lester W. Wilke, Garnarello, Iowa, rec. by E. O. Kagy and Wm. B. Day.

No. 94. Anna E. Mulrean, 2631 Harriet Ave., So., Minneapolis, Minn., rec. by Charles H. Rogers and F. J. Wulling.

No. 95. Earl N. Greenberg, 823 Logan Ave., N., Minneapolis, Minn., rec. by Charles H. Rogers and F. J. Wulling.

No. 96. Abraham Strimling, 94 Highland Ave., N., Minneapolis, Minn., rec. by Charles H. Rogers and F. J. Wulling.

No. 97. William Strimling, 94 Highland Ave., Minneapolis, Minn., rec. by Charles H. Rogers and F. J. Wulling.

No. 98. Harry T. Moyer, 5756 Chicago Ave., Chicago, Ill., rec. by Wm. B. Day and Clyde M. Snow.

No. 99. H. S. McCracken, 923 W. 19th Place, Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.

No. 100. Edward M. Givens, 34 Marcy St., Freehold, N. J., rec. by Harry W. Crooks and Edward A. Sayre.

No. 101. Clarence F. Ramsay, 10 E. Worcester St., Worcester, Mass., rec. by E. G. Eberle and J. W. England.

No. 102. Hamilton Russell, 121 S. Palafox St., Pensacola, Fla., rec. by Charles H. LaWall and E. G. Eberle.

No. 103. John H. Neumann, Lewiston, Minn., rec. by C. E. Matthews and Wm. B. Day.

No. 104. Eugene Katz, 895 West End Ave., New York, N. Y., rec. by Frank L. McCartney and Turner F. Currens.

No. 105. Julius S. Bellack, 1508 E. 57th St., Chicago, Ill., rec. by Charles C. Orr and S. C. Henry.

No. 106. Oscar U. Sisson, 5034 Cottage Grove Ave., Chicago, Ill., rec. by Wm. B. Day and Wm. Gray.

No. 107. Frank Nau, 141 6th St., Portland, Ore., rec. by Fred I. Lackenback and Wm. B. Day.

No. 108. Albert E. Mullen, 2482 Valentine Ave., New York, N. Y., rec. by Turner F. Currens and Frank L. McCartney.

No. 109. H. B. Shattuck, 31 East 17th St., New York, N. Y., rec. by Frank L. McCartney and Turner F. Currens.

No. 110. Carmelo Patella, 353 First St., Jersey City, N. J., rec. by Turner F. Currens and Frank L. McCartney.

No. 111. William Frank Parker, 51 West 37th St., New York, N. Y., rec. by Eugene G. Eberle and J. W. England.

No. 112. John Edward Martel, 152 Ave. A., Turners Falls, Mass., rec. by John F. Correa and John G. Godding.

No. 113. Philip Jacob Kolb, 2401 Claybourn Ave., Chicago, Ill., rec. by Chas. Matthews and Wm. B. Day.

No. 114. Gustav S. Kolar, 1801 Millard Ave., Chicago, Ill., rec. by M. A. Miner and Wm. B. Day.

J. W. ENGLAND,
415 N. 33rd Street, PHILA., PA. *Secretary.*

RESOLUTIONS ON THE DEATH OF JOSEPH PRICE REMINGTON.

BY COMMITTEE OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

"Tis not in mortals to command success,
But we'll do more, we'll deserve it."

Professor Joseph Price Remington, pharmacist, teacher, executive, writer, Christian gentleman—all these and more departed when on January first, nineteen hundred and eighteen, the leader of our profession went to "mix forever with the elements," and left behind him a memory which shall serve as an inspiration to workers of generations yet to come.

We can not adequately pay tribute to him nor honor him to the extent which is his due. We can only mourn our loss and give voice to a few of the thoughts that arise in us.

The elements of success are often sought for and wondered at after a great man has passed away. In the case of our friend and leader the cause of his success was not obscure. It came to him because he loved his profession and worked for it with every "nerve and bone and sinew." His was an altruistic nature where the good of pharmacy was concerned, and we, his friends and co-workers, representing the American Pharmaceutical Association, desire on behalf of that organization, to express our appreciation of his greatness and our sense of grief at the loss which pharmacy has sustained.

(Signed) CHARLES H. LAWALL, *Chairman*,
H. V. ARNY,
E. G. EBERLE,
S. L. HILTON,
FRANK G. RYAN.

RESOLUTIONS ON THE DEATH OF CHARLES HOLZHAUER.

BY COMMITTEE OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

WHEREAS, death has removed from the service of this Association, and from the happy companionship of its members, our beloved President, Charles Holzhauer, it seems fitting, as it is to us most desirable, that we should place on record our appreciation of the character and life-work of the deceased, and the deep grief which his loss has brought to us.

The earnest labors for the success of our coming meeting in which President Holzhauer was engaged at the time of his death, was but the culmination of an exceptionally long and faithful membership in the American Pharmaceutical Association. To him, Association membership was an important part of life, and its meetings among the important events of their respective years. Yet we shared his interest and devotion with many other associations and public interests which enjoyed his support. He was an active and valued member of his state association and of the New York College of Pharmacy, of which he was for many years a Trustee. Not only was he a tower of strength to the particular church of which he was a member, but a generous and helpful friend to many another in its hour of need, and his heart and hand were freely extended to religious work throughout the world. His contribution to the world's work was not that of a mere assenting contributor; he was also active and strong in the framing of policies, and prompt, though ever gentle and kindly, in bestowing criticism and in correcting error and misjudgment. In public affairs, his good citizenship was equally conspicuous. A Republican in politics, he was faithful to his party, yet would no more condone wrongdoing by his associates than by his opponents. He was so good a pharmacist that he acquired a wide and strong influence throughout the city in which he lived, and his influence once secured, was apt to be permanent. The friends of his youth were those of his later years, yet he possessed the happy faculty of attracting also those of a later generation.

In all his work, both private and public, Mr. Holzhauer was simple, calm and unassuming. His strength was the strength of repose, and his influence was thereby the more effective. His judgment of men, motives and measures was prompt, decisive and rarely at fault, and his advice was sought to an extent known only to those who were intimate with him. Such was Charles Holzhauer, the citizen and the man!

It was our great privilege, as his fellow members in this Association, to enjoy the benefits of generous companionship with such a character. His great heart could not be filled by the Association's organization affairs alone. He took into it the personal interests of a very large number of its members. Few exceeded him in the extent of their personal acquaintance with fellow members, to whom he frequently referred in conversation throughout the year. His regard was reciprocated, few being more inquired after when they were missed in attendance at the meeting.

Always modest and retiring, it was Mr. Holzhauer's preference, and his usual custom, to

remain in the background at our conventions, but when his voice was needed to guide counsels, or to prevent mistakes, he was never backward in the performance of his duty. He was generally regarded as a balance wheel in the Association and his opinions were freely sought by those who knew him well. Many a good measure has been furthered and carried because of the advice thus privately secured.

Probably no other public event of his life brought to Mr. Holzhauer such deep satisfaction as his election to the Presidency of our Association. So modest was he that he genuinely doubted whether a majority of the members could prefer him to others whom he recognized as being eminently qualified for the position. His pride and joy in becoming the recipient of this great honor were deep and full. We, his survivors, can best honor him by a faithful adherence to the principles by which he was guided.

With high appreciation and deep sorrow, we inscribe this tribute to his memory in the Association's records, and with deepest sympathy transmit a copy of the same to his bereaved family.

H. H. Rusby, *Chairman*,
Edward W. Runyon,
Henry M. Whelpley,
Clarence O. Bigelow,
John G. Godding.

LETTER TO THE EDITOR, RELATING TO PROF. JOS. P. REMINGTON.

I met Professor Remington first at Hot Springs, Ark., in September 1908, at a meeting of the A. Ph. A., the first one I ever attended. Strange to say perhaps, but the quiet reserve, and strong elements of character of this wonderful man, attracted my attention, and my impression of him was further strengthened and emphasized by the unique and original manner in which the late, still beloved Hallberg introduced him at a meeting of the Diastase Club.

I never felt at any time, that I was privileged to break in upon the quiet and sober reservedness of this good hearted man; yet I was always greatly profited and much delighted, whenever it was my good fortune to be thrown with—in the radius of influence, of his strong and attractive personality.

It was my great joy and personal privilege on several occasions, to be alone in friendly communion with this highly cultured, knightly, courteous gentleman, and splendid entertainer, at which time we exchanged a few stories, an art in which he had no superiors and few peers.

I was walking through the corridor of the Brown Palace Hotel at Denver, Colorado, when the A. Ph. A. met there, when some one hailed me, "Texas where are you going?" and I answered, exercising no definite destination; and Prof. Remington said, come and be with me for a while, to which I most cheerfully responded. While conversing together, Grand Pa Ellis came along, and he called him and introduced him as his preceptor, and had him sit down between us. This was a rich, rare and racy treat to me, in listening to the experiences here unfolded. Grand Pa Ellis addressed Professor Remington as his boy "Joe," and related the great disturbance that Joe experienced over the sale of an eighth of an ounce of bottle of morphine to a customer, who opened the bottle and swallowed the entire contents, causing Joe to beat a hasty retreat out of the store after Grand Pa Ellis to advise him of this awful catastrophe, that had so startled and distressed his young and inexperienced mind. Grand Pa Ellis told of the birthday dinners "of he and Joe" at Longport, sending several postal cards, repeatedly to Texas notifying me of the approach of these dinner happenings. This was truly a Methodistic lovefeast, reciting many joyous happenings of the past, which were sanctified with dampened eyes, and never before have I witnessed such an uninterrupted flow of love and affection; such communion of souls, and unification of hearts as seemed to exist between Grand Pa Ellis and his son "Joe," and the tender, sympathetic thoughts engendered in my mind and heart on this occasion, will never be effaced from my memory, for I was captivated and charmed, and fell desperately in love with these two grand and venerable characters.

Professor Remington was great in that he was unselfish, giving so much of self to the benefit and growth of others—so charitable and considerate of all; so modest and unassuming; in social intercourse, so entertaining and instructive; so sweet and kind in disposition; in personality so strong, that he unconsciously attracted attention, and made lasting and abiding impressions upon all with whom he came in contact.

My greatest regret is that I could not have seen more of him and known him better; but with the association that I was privileged to enjoy, I can of a truth say that his life was a most wonderful inspiration to me, and his memory a lasting and blessed benediction.

In sadness and great sympathy do I share the irreparable loss that the going of this noble, good man has occasioned among his own household, loved ones, and legion of friends.

Yours sincerely,

R. H. WALKER.

A TEMPLE OF PHARMACY FORECAST.*

"Professor Wulling's plan of confederating the national drug organizations struck me with much force. It appears at first to be impractical; but when you come to think it over, it seems entirely feasible, if too much is not attempted, and if his idea that the American Pharmaceutical Association shall be the controlling factor can be dispelled.

"When you consider for a moment, you will find that there is reason for the existence of all these organizations. Why did the national wholesale drug trade organize and withdraw from the American Pharmaceutical Association? It was simply because the American Pharmaceutical Association was not meeting the needs of wholesale druggists. Why was the National Association of Retail Druggists formed? Because there were certain commercial necessities that the American Pharmaceutical Association did not meet in the field of retail pharmacy. Then for a long time the pharmaceutical manufacturers were not organized. Each individual concern was a football between conflicting interests. One did not dare to move in the right direction for fear a competitor might take advantage of his stand by offering an unjust concession. So the organization of what was first called the National Association of Manufacturers of Medicinal Products arose out of the problems that confronted all manufacturing pharmacists. The necessities of manufacturing pharmacy were not met by the American Pharmaceutical Association, with which each individual concern was connected; nor by the National Wholesale Druggists' Association, of which each was an active or associate member. There was need for a new organization. This need developed and accentuated itself until in February 1912 this Association was born and named. That very same year it put its name in a report of the Committee on Ways and Means to the House of Representatives recommending the passage of the Sherley amendment, giving the approval of this association as one of its reasons. Of twenty odd bills relating to drug legislation pending before the committee, only two were reported, and these were the two suggested by the counsel of this association at a hearing upon all.

Since then our association has put itself into the Congressional Record many times without ever seeking to do so. What is the secret? Simply this: This association has won the confidence of legislative committees and executive bodies for the impartial correctness of the information it has given and the soundness of the judgments it has expressed. It has pursued no other method than that of addressing the judgment and reason of its auditors. This need of pharmacy was never before met by any organization I know of. Thus we have adopted as our code that principle of legal ethics laid down by the American Bar Association, never to undertake to influence a legislative body or executive function in any other way or on any other theory than is followed by a lawyer of true ideals in a court of justice.

But is this not all a digression? I answer no. I relate this history to demonstrate that the American Drug Manufacturers' Association can never merge its identity—its individuality, in any confederation, and I believe the same is true of all the other organizations interested. However, I believe there is room for a confederation of these organizations upon a basis that will not deprive any association of its individuality, but will enable each to hold its meetings in the same place for different purposes.

Professor Wulling's address contained a recommendation that has not been mentioned here—that the confederation, when organized, localize itself, perhaps in Washington, perhaps in New York, in Philadelphia or in Chicago—some place to be decided upon; and there erect what I will

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* The above is from the stenographer's notes of Mr. Charles M. Woodruff's verbal report to the American Drug Manufacturers' Association as fraternal delegate from that association to the American Pharmaceutical Association.

take the liberty of calling a Temple of Pharmacy. The professor did not name it. This temple should be the home of pharmacy in all of its branches; where we could all meet within our own gates; where the archives of our respective organizations could be preserved; where large reference libraries could be maintained. It is possible that Professor Lloyd might be willing to have his valuable library housed in a fireproof Temple of Pharmacy.

"Professor Wulling pointed out that his plan meant the initial investment of many hundred thousands of dollars; but he thought the amount could be raised in normal times; and I think so too. His address was the one distinguishing feature of the meeting. It will be as much of an epoch in the history of pharmacy as the gathering of five men at lunch during the Denver meeting of the American Pharmaceutical Association when regret was expressed that it seemed impossible for the several drug interests to get together on matters that interested all. On that occasion I told them how manufacturers dreaded being outvoted by meetings largely attended by representatives of local retail associations, and made the remark: 'Whenever you can devise a body that shall be composed of an equal number of delegates from each of the recognized national associations, and which shall be advisory only, the manufacturers will be with you.' Professor Beal, who was at the table, worked out the idea and presented it to the Association. The results were the National Drug Trade Conference—unique in the history of trade, scientific or professional organizations.

"Think of it! a conference meeting at Washington, deliberating upon a bill proposed by an eminent congressman, and doing so at his instance; amending and modifying it according to the consensus of the judgment of its members; then getting the approval of two of the departments to its amendments, and finally submitting a signed copy of the re-draft to be reintroduced by the same congressman as the bill of the Conference; and securing its passage in the house in the same week it was introduced! The Conference was as deliberative a body as framed the Declaration of Independence, or the Constitution of the United States, and yet a purely advisory body—a body in which we are not merged and yet of which we are members.

Do we not have in the National Drug Trade Conference the embryo, or perhaps the type of, a larger organization, which shall have its Temple of Pharmacy where we may gather annually instead of at the Waldorf-Astoria, and hold our meetings just as independent as we are now holding them, but in an atmosphere distinctly pharmaceutical, and with the feeling that we have the sympathetic interest of all other national pharmaceutical bodies meeting in the same place?"

COMMITTEE REPORTS

REPORT OF THE SPECIAL COMMITTEE ON COMPULSORY HEALTH INSURANCE.

CHICAGO BRANCH OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

The Special Committee on Compulsory Health Insurance which reported partially on February 23, 1917 (JOUR. A. PH. A., 1917, pp. 315–317), herewith submits as its final report the following:

The Committee has considered the subject of health insurance with especial reference to the model bill known as "Standards and Tentative Draft of an Act" proposed by the American Association for Labor Legislation. In connection with this bill the committee has studied the various pamphlets advocating this plan of social insurance which have been issued from time to time by the American Association for Labor Legislation, the reports issued by the Council on Health and Public Instruction of the American Medical Association, and numerous articles appearing in various medical and pharmaceutical journals, and has also sought to obtain information concerning the operation and effects of health insurance systems in force in Germany, Great Britain and other European countries.

As a result of its studies the committee has arrived at the following conclusions:

(1) The standard bill discriminates unjustly between persons employed at manual labor and other wage earners. By the terms of the bill employees at manual labor are to be entitled to benefits regardless of the amount of their annual or monthly earnings, while all other wage earners are to be excluded from these benefits, unless their wage income is $100 or less per month.

One result of this discrimination would be that an employee at other than manual labor who received even a very small amount in excess of $100 per month, would be called upon to contribute to benefits for highly skilled mechanics whose annual income might be very much greater than his own.

(2) The standard bill is defective in that it does not make any distinction between illness or disability resulting from the fault or immoral habits of the wage earner or members of his family and that resulting from the nature of the employment, or which ensues without fault or neglect on the part of the insured employee or his family.

In the opinion of the Committee, innocent, industrious and sober employees should not be called upon to bear the expense of the illness or disability, or to contribute to cash benefits for those whose illness or disability is the natural result of their own vicious habits or immoral behavior.

(3) The standard bill is defective in that it does not make adequate provision for the care and treatment of the most necessitous classes of wage earners, namely, those known as casual employees—because their employment is occasional or irregular—and those who are described as self-employed persons—or those who gain a livelihood by the conduct of some small independent business of their own.

In the case of the casual employee the bill gives to the Social Insurance Commission the power to altogether exempt them from benefits. In the case of the self-employed individual it provides that he may insure himself voluntarily in the insurance funds, provided he can pass a satisfactory medical examination and pay the premiums. This means nothing to the self employed person, since he already possesses the privilege of insuring himself, provided he is able to pass a satisfactory examination and pay the premium.

(4) The bill is objectionable in that it places no limit whatsoever upon the amount of money that may be collected and expended for the purposes of health insurance. The proportions of the several contributions by employers, employees and the state are fixed, but not the amount which may be collected and expended so long as the proportions specified are adhered to.

In the opinion of the Committee it would be bad public policy to erect within the state a political instrumentality for the collection and expenditure of money—amounting to millions of dollars annually—without any other limitation upon the total sums to be collected and expended than the discretion of the individuals selected to administer the law.

(5) The standard bill is objectionable in that it empowers the Social Insurance Commission to establish and maintain as many branch offices, and to appoint as many officers, assistants and employees as it deems necessary, without any limitation upon this appointing power.

In the opinion of the Committee, it would be contrary to a sound public policy to confer upon any body created by legislative action the unrestricted right to establish branch offices and to appoint as many assistants and other employees as it might deem necessary.

(6) The bill is objectionable in that it does not provide any outside instrumentality to supervise the handling and care of the vast sums of money which would be collected and disbursed in the administration of the act.

In the opinion of the Committee it would be contrary to sound public policy to relieve the various boards and committees provided for in the bill from the supervision and control of the auditing and other supervisory agencies which the state imposes upon its various other fiscal agents who are charged with the collection and disbursement of public monies.

(7) The standard bill is objectionable in that some of its provisions are so loosely drafted that it is impossible to intelligently interpret them or to determine the manner in which they are to be applied. As an example we cite Section 56, which reads as follows:

"*Medical Advisory Board,* The State Medical Societies shall choose a Medical Advisory Board which shall be consulted on medical matters."

It will be observed that it is impossible to determine from this language either the number of members on the board or the length of time for which they are to hold office. Neither is there any specification as to the manner in which the board is to assemble, conduct its deliberations or deliver its decisions. It is equally uncertain whether the medical societies representing the various sectarian schools of medicine are each to elect an equal number of members to the medical advisory board, or whether their representation thereon is to be proportional to the number of members constituting the medical society.

Other portions of the bill are equally obscure and uncertain.

(8) The bill is objectionable in that it makes no provision whatsoever for the manner in which pharmaceutical, medical and surgical supplies are to be obtained.

From a study of the history of the evolution of the bill, and from statements of some of those who favor its enactment by the several states, there is reason to believe that it is contemplated that these supplies will be furnished to insured persons and their families through dispensaries established and maintained out of the insurance funds.

Since it is estimated that compulsory health insurance would provide for the medical requirements of 75 to 80 percent of the working population, there would naturally be a corresponding contraction in the demand for such supplies through the usual retail drug store. Believing as we do that the retail drug store is both a public necessity and a public convenience, we are of the opinion that such a discrimination against the retail druggist is unjust, especially when we consider that the proprietor as an employer would be required to insure his employees under the fund, and as a tax-payer would be compelled to contribute to the proportion of the expense which is to be borne by the state.

In this connection the committee has also made some effort to learn the effect of compulsory insurance upon the drug business in countries where such systems are in force, and where by means of positive provisions in the law efforts have been made to care for the interests of drug dealers.

As a result we have found that such dealers are very generally dissatisfied with the operation of the law. When they receive a portion of the insurance business, they are compelled to render services for which they receive but very little compensation, while those who receive little or none of the insurance practice have suffered a great contraction in the volume of their former business.

(9) The standard bill is objectionable in that it will tend to discourage self-help on the part of employees through voluntary insurance in trade unions and fraternal societies or in societies maintained jointly by the contributions of employees and employers.

While certain sections of the bill seem to authorize the insurance of wage earners in voluntary societies, it is apparent on closer study that the continuance of such societies is to be prevented or at least discouraged. The reason for this conclusion is found in the provision that an employer who contributes to such a society within his own establishment must, nevertheless, pay to the Social Insurance Commission the same amount as he would be required to pay if his employees were not thus voluntarily insured. There is also a further provision which permits the closing up of such societies if, in the opinion of the Social Insurance Commission, their continuance will endanger the success of the state insurance fund in any district.

It is the opinion of the Committee that the state should foster attempts at self-help on the part of wage earners rather than the contrary, and also that if a state subsidized system of insurance is unable to successfully compete with voluntary associations, then there is no reason why the state should attempt such functions.

In addition to the foregoing objections, which refer particularly to the provisions of the standard bill, the committee cites the following objections to *any* system of state subsidized compulsory health insurance:

(10) The claims of the advocates of compulsory health insurance that its establishment will improve the general health conditions of the community and diminish the mortality and morbidity rates, are disproved by statistics collected from countries where such systems of insurance are in force.

According to statistics collected by Mr. Frederick L. Hoffman, statistician for the Prudential Life Insurance Company:

"From the introduction of social insurance in the city of Berlin to the present time, the mortality rate at ages over ten years has practically remained unchanged. * * * Considered by quinquennial periods, there has practically been no perceptible change in the rate during the entire period since social insurance has been in operation, including insurance against invalidity. Evidence of this nature can neither be contradicted nor gainsaid.

"There has been a greater reduction in the tuberculosis death rate in this country than in Germany, regardless of the enormous governmental machinery serving social insurance purposes."

According to Mr. Hoffman the decrease in the tuberculosis death rate in Prussia was 51 percent in thirteen years, while in the same period the decrease in the tuberculosis death rate in Massachussetts was 57 percent.

Mr. Hoffman also shows that there has been a greater decrease in the mortality rates in New York City than in Berlin from tuberculosis, typhoid fever, diphtheria, and croup.

From the report of a commission especially appointed to consider the results of the insurance act in Great Britain the following statements are abstracted:

"The tuberculosis scheme cannot be regarded as a success. In all probability much better results would be obtained were the existing system of over-lapping control brought to an end and the whole responsibility vested in one public health authority. * * * The results of the act as regards sanatorium benefit are looked on as disappointing. The problem was largely miscalculated and the results fall far short of the expectations raised. * * * Most of the evidence was in favor of handing the whole treatment of tuberculosis to the public health authorities."

Much additional evidence might be cited tending to the same effect, namely, that there has been a greater improvement in morbidity and mortality rates in the United States than in the various European countries where compulsory insurance systems are in force.

(11) Compulsory health insurance in the United States would operate to the detriment of the professional independence and progress of the general medical profession.

It might be to the financial advantage of those securing employment under the act, either as panel physicians or as salaried officials, but this could only be at the corresponding disadvantage of physicians who did not obtain such positions.

In order that the whole body of physicians might profit by the enactment of such a law, it would be necessary either that the number of patients per physician should be increased, or if the sickness rate remain the same, that the rate of pay per patient should be increased.

To argue that the amount of sickness would be increased is to argue against the enactment of such a law. To argue that the average rate of pay per patient would be increased is to argue in opposition to experience. Wholesale business implies wholesale rates, and it would be foolish to assume that those in charge of the insurance funds would be willing to pay the same rates for the treatment of 500 families as would be expected in private practice, or that in arranging for medical services they would not make use of the economic force of competition among physicians.

(12) Compulsory health insurance would be detrimental to the medical profession because of the political competition for positions which would inevitably result. It is utterly foolish to assume that where positions differed in desirability there would not be political scrambles to obtain the more desirable ones; or that such competition could be carried on without political organization and all of the turmoil that political contests induce. To win, the contestants would have to be affiliated with the winning side, and that means "practical politics," and all that such affiliation implies.

(13) A system of compulsory health insurance would be inimical to the progress and improvement of the existing regularly constituted public health agencies. The new system would have behind it a powerful organization consisting of a multitude of officials and employees, and able to exercise tremendous pressure upon legislative bodies and the public administration of the state. With such an organization, constantly calling upon the legislature for new appropriations, the other public health agencies of the state would have to compete, with results that could only be disastrous to the weaker party.

(14) Compulsory health insurance could not fail to weaken the sense of personal responsibility and to lesson the efforts at thrift and providence of the wage earner. It is contrary to human nature to expect that those who feel that they will be provided for by the government will not let down in their efforts to make provision for themselves, with a consequent reduction in the moral stamina of the individuals concerned. Such a reduction in moral stamina is one of the acknowledged results of compulsory insurance in European countries.

(15) Compulsory health insurance would inevitably result in the production of a large number of discards among industrial workers, because it would make necessary the discarding of employees who were bad risks from the insurance standpoint.

One student of the subject has estimated that the number of such discards in the United States would amount to four millions or more, who would thus automatically pass from the list of those regularly employed into the classes of the unemployed, casually employed, or self-employed with a corresponding increased strain upon public charities.

(16) Compulsory health insurance would not only increase the normal rate of state taxation enormously,—perhaps two or three hundred percent—but would add very greatly to the cost of products manufactured by the insured industries.

It requires only an elementary knowledge of political economy to realize that burdens placed upon industries are eventually transferred to the ultimate consumer. Under health insurance both employer and employee could obtain partial recompense for their added expenses, the first by adding to the selling price of his product, and the second through medical benefits. But the ultimate consumer, who is neither employer nor employee, would have no such means of recoupment and would have to bear the burden alone.

(17) One effect of compulsory health insurance in European countries has been to increase malingering on the part of employees, that is, either the pretense of illness or the exaggeration of symptoms in order to secure benefits.

Statistics show this to be true beyond question, and that in Germany, for example, not only has the number of real or pretended cases of sickness very largely increased but also that the period of real or pretended disability has been very greatly extended under health insurance. Numerous competent observers have asserted these facts, and several have estimated "the number of impostors and those who intentionally exaggerate their symptoms as constituting not less than 50 percent of all cases."

Similar results have been noted in Great Britain and in other countries where these laws are in force. There is no good reason whatsoever to believe that the same result would not follow the introduction of the system into this country.

In conclusion. The Committee report that, in their opinion, a system of state subsidized compulsory health insurance is contrary to the fundamental ideals of the functions of government as hitherto interpreted in America, and of a self-reliant, progressive American citizenship. The Committee therefore recommends that the Chicago Branch of the American Pharmaceutical Association refuse to endorse the standard bill proposed by the American Association for Labor Legislation and, in case such legislation is proposed in the state of Illinois, that the members of this Branch, individually and collectively, take an active part in seeing that the general public, and especially tax-payers, wage earners, and members of the medical profession and of the drug trade shall be fully informed of the dangers of state subsidized compulsory health insurance and of the results that have followed the establishment of such insurance in other countries.

Respectfully submitted,

J. H. BEAL, *Chairman*,
BERNARD FANTUS,
J. H. WELLS,
Committee.

REPORT OF THE COMMITTEE ON DRAFTING A MODEL FOR A MODERN PHARMACY LAW, AMERICAN PHARMACEUTICAL ASSOCIATION.*

Your Committee at this time presents what it would designate to be a Preliminary Draft. In taking up its task the Committee has been mindful of the work of the Voluntary Conference which was created under the auspices of the Section on Education and Legislation and which proposed a number of new features, very generally meeting with the approval of the State boards and State associations represented therein. It is our understanding that proper further consideration shall be given to the wishes of the Voluntary Conference in the final completion of our work. We would make plain that none of the features contained in the Preliminary Draft have met with final approval, and that as to some there is at present a difference of opinion in the Committee. We believe it possible only to arrive at the best conclusions at a conference where the Committee members can discuss every feature and then decide upon its desirability and such conference will be our aim.

In submitting this preliminary and unfinished draft we have the thought to profit from discussion and criticism which may take place at this meeting and which we earnestly solicit.

* A general discussion followed the presentation of each Section discussed, and at the conclusion of the discussion a vote of thanks was tendered the Committee for their painstaking work, and the body recommended the continuance of the Committee. Chairman Freericks expressed the opinion that the final report on the draft would be presented at the next meeting. The analysis and draft are printed so that all members may study the provisions.

Likewise, we hope to profit from publication and discussion in the Pharmaceutical Press, and if possible in the Medical Press. In order that there may be no misunderstanding as to the scope of our work, we would explain that we mean it to be purely a model. It is not within our sphere to present a draft which can be certainly enacted to-day or to-morrow, in the different States, but rather to present one which we know with due regard for the public welfare should be enacted. We realize that conditions in different States may not be opportune for securing such pharmaceutical legislation as should now exist, but we believe that with a proper model there can be a gradual, if not an immediate, accomplishment. Therefore, we would say to the critic who agrees that our aim is correct, but not possible of practical attainment, that we are concerned only in having the correct aim, and that we must leave to the future, which inevitably works toward correctness and improvement, the desired practical attainment.

In order to serve a more ready appreciation of the scope of this Preliminary Draft, we offer the following abstract of its more important features:

First, It provides that at least a majority of pharmacy board members shall be graduates in pharmacy.

Second, That the pharmacy board shall in conjunction with a drug commissioner to be appointed by it, be charged with the enforcement of all laws pertaining to pharmacy, inclusive of the compounding, distribution, purity and sale of drugs.

Third, That all persons engaged in compounding, selling or distributing potent drugs and poisons at retail, shall prove qualification, and shall be registered by the board of pharmacy.

Fourth, A more definite status of the rights of the assistant pharmacist is sought; the physician and veterinarian, who would compound and dispense his own medicines must prove his qualification to practice pharmacy, and to that extent is to be under the supervision of the board of pharmacy; the so-called drug dealer is to exist only where reasonable public needs require his existence, and he is to show at least some qualification. The provisions which concern the physician and the drug dealer, that is, to show qualification, are not to be applicable to those physicians and drug dealers who at present may be qualified because of practical experience, and such practical experience shall entitle them to registration, in order to meet the objection which otherwise would be insurmountable.

Fifth, It does not seek to interfere with the present practice of the physician, dentist or veterinarian to supply emergency drug needs when personally administered by him.

Sixth, Preliminary educational requirements and the so-called prerequisites are provided for. Academic degrees are required from those who in the future would occupy the chairs of pharmacy, chemistry and materia medica, in colleges of pharmacy. Apprentices are to be registered when they enter their apprenticeship. Reciprocal registration is provided for. Requirements for recognition as colleges or schools of pharmacy are sought. Membership in an association of state boards of pharmacy is sought to be put upon a legal basis, and the necessary support for maintaining such an association is provided for.

Seventh, Suspension and revocation of certificates for cause inclusive of a proper right of appeal from the decision of the board.

Eighth, Definitions for poisons and for potent drugs under which it will be the duty of the board of pharmacy from time to time, to enumerate all poisons and all potent drugs, publishing lists of the same, with provision for a proposed appeal from the decision of the board.

Ninth, All poisons and potent drugs as enumerated either in the Act or in publications of the board are to be labeled, showing poison or potent drug content, but when dispensed by or on the order of a physician, dentist or veterinarian, to either show such content, or to be subject to ready identification by number or mark corresponding with a number or mark on a written record of the content.

Tenth, Drugs and medicines compounded and manufactured under the laws of other States not requiring a publication of poison or potent drug content, when offered at retail, to be under the supervision of the board of pharmacy, whose duty it shall be to determine poison and potent drug content, and who shall then publish lists of such articles, and aside from the label requirement all of the other provisions governing the sale and distribution of poisons and potent drugs, shall then be applicable after such publication.

Eleventh, The Act is intended to include the N. A. R. D. Model for an Anti-narcotic Law.

Twelfth, The Act is intended to include a Pure Drug Law, based upon the provisions of the Federal Act.

Thirteenth, Throughout it has been the aim, aside from matters pertaining to drug adulteration, to seek control primarily over all persons who at retail would sell and distribute poisons and potent drugs. It will be observed that the classification of drugs which are to be considered of a potent character is sufficiently broad, to include all which in the hands of unqualified persons may endanger health and life. The primary thought is, to protect the public whose welfare should be our first aim. A complete copy of the preliminary and unfinished draft is attached hereto.

Respectfully submitted,

FRANK H. FREERICKS, *Chairman*,
WILLIAM C. ANDERSON,
H. V. ARNY,
JAMES H. BEAL,
CHAS. H. HUHN.

PRELIMINARY PARTIAL DRAFT OF AMERICAN PHARMACEUTICAL ASSOCIATION MODEL PHARMACY LAW.

AN ACT TO REGULATE THE PRACTICE OF PHARMACY, ETC.

SECTION 1: Definitions.

SECTION 2: There shall exist and be maintained within the State a State Board of Pharmacy with duties and powers as hereinafter defined and provided. The State Board of Pharmacy shall consist of five (5) members, and the now existing State Board of Pharmacy heretofore appointed, shall continue in office and act as the State Board of Pharmacy with all the duties and powers as herein provided until the terms of its present members, respectively, expire, the vacancies as they annually occur to be filled in keeping with the requirements of this Act. Hereafter in making appointments to the State Board of Pharmacy the appointees shall have been Registered Pharmacists under this or some former law of the State, for a period of at least ten (10) years, and they at the time of their appointment shall be engaged in conducting a retail pharmacy. At least three (3) members of the State Board of Pharmacy shall be graduates of a, by this State, recognized college or school of pharmacy, and if the now existing State Board of Pharmacy is not so constituted the first occurring vacancies of the State Board shall be filled with appointees meeting such qualification, except in the case of re-appointment of present members, and such qualification for at least three (3) members of the Board shall thereafter be maintained. Members of the Board of Pharmacy to be appointed under this Act, shall be appointed by the Governor and shall serve for a term of five (5) years, or until their successors are appointed, and have duly qualified. Vacancies occurring in the Board other than by expiration of term shall be filled for the unexpired term only. The members of the Board shall be paid ten ($10.00) dollars *per diem*, and their necessary expenses while actually engaged in the performance of the duties of the Board. Annually, the State Pharmaceutical Association may from among its membership nominate five (5) candidates for the next occurring vacancy on the Board of Pharmacy, who shall meet the requirements as herein provided, and, from among the nominees when regularly submitted and certified by the president and secretary of said State Association, or from others having the necessary qualifications, the Governor shall make his appointment for vacancies occurring in the Board of Pharmacy. Appointees to the Board of Pharmacy shall within ten (10) days after their appointment, take and subscribe an oath or affirmation before a properly qualified officer, that they will faithfully and impartially perform the duties of their office, which oath or affirmation shall be filed with the Secretary of State. The State Board of Pharmacy shall have a president, vice-president, secretary and treasurer, all of whom shall be elected annually, from among their number, except the secretary. The officers of the existing Board shall continue to so act until their terms, for which they have been elected, expire.

SECTION 3: Duties and compensation of Secretary and Treasurer.

SECTION 4: It shall be the duty of the State Board of Pharmacy through officials and employees appointed by it, or under its supervision for that purpose, to enforce all laws of the State now or hereafter enacted, which pertain to the practice of pharmacy, manufacture, production, sale or distribution of drugs, chemicals and poisons, and to their standard of purity.

SECTION 5: There is hereby created the office of a State Drug Commissioner, who under the jurisdiction and supervision of the State Board of Pharmacy, on his own authority as such, is directly charged with the enforcement of all laws as provided in Section 3, subject to the control of the Board. The State Drug Commissioner shall be appointed by the State Board of Pharmacy for a term of five (5) years at a salary of $—— per annum. The State Drug Commissioner immediately prior to his appointment shall have been engaged in the practice of pharmacy for at least ten (10) years, he shall be a graduate of a college or school of pharmacy, recognized under the laws of this State, and shall be chosen with due regard for his knowledge of chemistry and of his executive ability. Vacancies in the office of the State Drug Commissioner shall be filled by the Board for the unexpired term. The State Drug Commissioner shall employ all necessary chemists, agents and clerical help, for the proper conduct of his office, as may be from time to time determined by the State Board of Pharmacy, and all of his appointments shall be passed upon and approved or disapproved by the State Board of Pharmacy at its next regular session after the appointments are made. The State Drug Commissioner shall report to the State Board of Pharmacy at all its regular sessions.

SECTION 6: The State Board of Pharmacy shall meet at least four (4) times a year in the City of ————, or at such other place within the State as it may designate at any regular session, as an Examining Board, and for the purpose of supervising the office of the State Drug Commissioner. As an Examining Board it shall examine all persons in the art and science of Pharmacy and its allied branches, who meet the necessary qualifications as herein provided and who make application for registration as Pharmacist, Assistant Pharmacist, Medical or Veterinary Dispensers and Drug Dealers.

SECTION 7: The compounding, manufacture, sale and distribution of drugs and medicines at retail when of potent or poisonous character as defined in this Act, shall be limited exclusively to persons who are registered for that purpose under the provisions of this Act, provided that all persons heretofore and now registered within this State as Pharmacists or Assistant Pharmacists, shall have all the rights which are granted to Pharmacists and Assistant Pharmacists under this Act when complying with the requirements thereof as hereinafter set out; and, provided further, that nothing contained in the Act shall be construed to prevent the personal administration of drugs and medicines carried or kept for emergencies, by licensed dentists, physicians and veterinarians, in order to supply the immediate needs of their patients while in their presence. For the purposes of this Act there shall be and are hereby made provisions for the registration of Pharmacists, Assistant Pharmacists, Medical and Veterinary Dispensers and Drug Dealers, each having the rights hereinafter provided, and being subject to the limitations and restrictions as respectively made.

(*a*) A Pharmacist shall have the right to conduct a pharmacy for the compounding of medicines upon physicians' prescriptions, and for the manufacture, sale and distribution of drugs, medicines and poisons.

(*b*) Assistant Pharmacists shall have the right to do all things that may be done by a Pharmacist, in a pharmacy or place of business conducted under the supervision of a pharmacist. Supervision as herein required shall not permit the absence of a Pharmacist for more than one (1) day within each separate week.

(*c*) Medical or Veterinary Dispensers, who must also be by this State licensed physicians or veterinarians, shall have the right only to compound and dispense medicines which they prescribe for persons or animals under their medical treatment, and such compounding and dispensing shall be strictly incident to the practice of medicine and veterinary medicine.

(*d*) Drug Dealers when conducting fixed places of business at least ———— miles distant from a pharmacy, shall have the right to distribute and sell potent drugs and medicines, and poisons as compounded and prepared under the supervision of pharmacists registered in this or other States when properly labeled under the name of a Registered Pharmacist, known wholesale dealer or manufacturer of drugs and chemicals. A drug dealer having established a fixed place of business under the law shall be privileged to continue the same notwithstanding pharmacies are subsequently established within the ———— mile zone, but when disposing of his place of business shall be subject to the restrictions herein provided in establishing a new place of business.

SECTION 8: Applicants for registration as Pharmacists, Assistant Pharmacists, Medical or Veterinary Dispensers, or Drug Dealers, shall before being admitted to examination meet the following preliminary requirements, proof of which must be first filed with the secretary of the Board under rules and regulations adopted by it:

(*a*) Applicants for registration as Pharmacists, shall be not less than twenty-one (21) years of age, and shall be graduates of a recognized college or school of pharmacy; they shall have at least four (4) years of practical experience in a drug store or pharmacy where physicians' prescriptions are compounded, provided that not more than two (2) years of credit in meeting such requirement may be given for attendance of at least two (2) full school years at a recognized college or school of pharmacy; they shall have to give proof of a preliminary general education equal to eight units as given in a high school of the State.

(*b*) Applicants for registration as Assistant Pharmacists shall be not less than eighteen (18) years of age, and shall have at least two (2) years of practical experience in a drug store or pharmacy, where physicians' prescriptions are compounded, provided, that a credit of one (1) year in meeting such requirements may be given for attendance of not less than one (1) full school year at a recognized college or school of pharmacy; they shall meet the same general educational requirements as provided for pharmacists.

(*c*) Applicants for registration as Medical or Veterinary Dispensers shall give proof that they are registered under the laws of the State as Physicians or as Veterinarians.

(*d*) Applicants for registration as Drug Dealers shall be not less than twenty-one (21) years of age, and shall give proof of having attained at least a common school education entitling them to entrance of a high school in the State.

SECTION 9: Applicants for registration as Pharmacists and as Assistant Pharmacists shall, to prove their respective requisite knowledge, be examined to a proper varying degree in the subjects of chemistry, botany, materia medica, toxicology, and the theory and practice of pharmacy. Applicants for registration as Medical or Veterinary Dispensers shall be examined in the theory and practice of pharmacy, the scope of such examination to be like that which applicants for registration as Assistant Pharmacists are required to pass. Applicants for registration as Drug Dealers shall be suitably examined in physics and toxicology. Provided, however, that all registered physicians and veterinarians of this State, who, when this Act takes effect, have been accustomed to compound and dispense the medicines which they prescribe for their patients, may on application to the Board of Pharmacy within ninety (90) days from that date, upon affidavit, setting out such fact, become registered without examination as such Medical or Veterinary Dispensers and Drug Dealers, who prior to, and at the time that this Act takes effect, have been engaged as such within the State, may within ninety (90) days from that date become registered as such without examination, upon application to the Board of Pharmacy, giving satisfactory proof.

SECTION 10: Persons who hereafter desire to engage in pharmacy, with a view of becoming registered as Assistant Pharmacist and as Pharmacist, shall, upon entering employment in a pharmacy, register as apprentices with the State Board of Pharmacy, and for all such persons the requisite practical experience shall be determined from the date of registration. A fee of fifty cents (50 c.) shall accompany an application for registration as apprentice. A person who before or after this Act takes effect may have served part of his apprenticeship in some other State not requiring such registration shall give proof of such service satisfactory to the Board. Persons who for more than six (6) months immediately

prior to the time when this Act becomes effective, have been employed in a retail pharmacy, with a view of becoming registered as an Assistant Pharmacist or as a Pharmacist, shall for the purpose of registration as such, be by the Board required to meet the provisions of the law as they existed immediately prior to this Act becoming effective.

SECTION 11: It shall be unlawful for any person to impersonate an applicant before the State Board of Pharmacy applying for registration under the provisions of this Act. Any person violating this Section shall be guilty of a misdemeanor, and, upon conviction, shall, pay a fine of not more than one hundred ($100.00) dollars, or be imprisoned for not more than six (6) months, or either, or both, in the discretion of the court.

SECTION 12: Persons desiring to enter a college or school of pharmacy shall give proof of the required general education prior to admittance thereto. The necessary proof of an entrance examination shall consist either of certificates issued by the proper school authorities, or in successfully passing an examination before an Entrance Examiner, appointed by the Board for that purpose, at suitable compensation to be allowed by the Board. The Entrance Examiner, under the authority of the Board, shall issue to such persons applying therefore a certificate of preliminary education.

SECTION 13: The State Board of Pharmacy shall recognize as such, Colleges and Schools of Pharmacy which require for graduation a course of studies covering a period of not less than fifty (50) weeks of actual instructions, occupying two (2) school years, with a vacation period of at least two (2) months, between such two (2) school years. Each school year shall cover at least two hundred and fifty (250) hours of class-room instructions and three hundred and fifty (350) hours of individual laboratory practice, including at least the work outlined by the Pharmaceutical Syllabus of 1913. It shall further be required for recognition that at least the professors of pharmacy, chemistry, and materia medica, teaching in such school or colleges of pharmacy, shall hold the degree of B.A. or B.Sc., provided, that this requirement shall not apply to professors of pharmacy, chemistry, or materia medica, who are teaching as such in colleges or schools of pharmacy when this Act becomes effective.

SECTION 14: The State Board of Pharmacy may in its discretion grant certificates of registration as Pharmacist or as Assistant Pharmacist, to persons who furnish proof that they have been registered as such by examination in some other State, and that they are of good moral character, provided, that such other State in its examinations requires the same general degree of fitness as is required by examination in this State, and that the applicant qualifies in all other respects as is required for registration by examination in this State, excepting that persons who have become registered by examination in other States, prior to the time that this Act takes effect, and who have continuously thereafter been engaged in pharmacy, shall be required to meet only the requirements which existed in this State at the time when they became registered in such other State, and provided further, that such other State or States in like manner grant reciprocal registration to Pharmacists and Assistant Pharmacists of this State. Applicants for reciprocal registration in this State shall defray all necessary expense for making an investigation of their character, general reputation and pharmaceu tical standing, in the State where they have resided, such expense not to exceed the sum of ten ($10.00) dollars.

SECTION 15: The State Board of Pharmacy, in order to be informed and to determine the status of Boards of Pharmacy of other States desiring reciprocal registration, and in order also to be advised regarding the progress of pharmacy throughout the country, shall annually select one of its members to meet at the expense of the Board, to be allowed out of its appropriation, with like representatives from other State Boards of Pharmacy. At such meetings, when arranged, there shall be discussed the degree of fitness for registration which is required by the several State Boards of Pharmacy. Such representatives of the several State Boards of Pharmacy may adopt rules and regulations, which shall guide the several Boards in the matter of reciprocal registration, but abidance with such rules and regulations as may be proposed at annual conferences shall be optional and at the discretion of the State Board of Pharmacy. The State Board of Pharmacy through its representatives may with like representatives from other State Boards of Pharmacy join in

creating and maintaining an association of representatives of the several State Boards of Pharmacy, to be engaged in the general advancement of pharmacy and the keeping of records pertaining to reciprocal registration of pharmacists, and at its discretion the Board may give to such Association information which it possesses relating to such aims and objects. The State Board of Pharmacy at an expense not to exceed one hundred ($100.00) dollars per annum may subscribe for and secure the service of an association engaged in the compilation of pharmaceutical information, knowledge and progress, specially adapted to secure efficiency in the work of the Board.

SECTION 16: Applicants for examination as Pharmacists shall pay an examination fee of five ($5.00) dollars; applicants for examination as Assistant Pharmacists, Medical or Veterinary Dispensers, and as Drug Dealers, shall pay an examination fee of three ($3.00) dollars. Certificates of registration shall be issued to Pharmacists on payment of a fee of ten ($10.00) dollars, and to Assistant Pharmacists, Medical or Veterinary Dispensers, or Drug Dealers, on payment of a fee of five ($5.00) dollars. Certificates of Preliminary Education shall be issued at a fee of three ($3.00) dollars. Applicants for reciprocal registration as Pharmacists, in addition to the fee covering costs of investigation, shall pay a fee of $——— and Assistant Pharmacists a fee of $——. All fees shall be paid to the State Board of Pharmacy, and by it covered into the State Treasury.

SECTION 17. The registration of any Pharmacist, Assistant Pharmacist, Medical or Veterinary Dispenser, or Drug Dealer, may be suspended or revoked by the Board of Pharmacy, when the registration is proved to the Board, to have been obtained by fraudulent means, or when the registrant has been convicted of a felony or is found by the Board to be guilty of gross immorality, or to be addicted to the liquor or drug habit to such a degree as to render him unfit to compound, sell or distribute drugs and medicines. Suspension or revocation of a certificate shall be only after due notice and hearing, and for the purposes of such hearing the Board or any member thereof is authorized to examine witnesses under oath and to take oaths or affirmations, and to reduce the testimony given in any such case to writing. Within thirty (30) days after the suspension or revocation of a certificate of registration, the registrant may take an appeal to any court of record of the State, of competent jurisdiction, and pending such appeal the decision of the Board shall be suspended until the court renders judgment which shall be final in the case, and if the decision of the Board is not sustained, the registrant shall be re-instated.

SECTION 18: There shall be kept in every pharmacy and in every medical or veterinary dispensary a copy of the latest revision of the U. S. Pharmacopoeia and the latest revision of the National Formulary, and if Homeopathic remedies are compounded and dispensed, a copy of the latest revision of the American Homeopathic Pharmacopœia or Homeopathic Pharmacopoeia of the U. S., which books must be open to the inspection of the Board of Pharmacy, the Drug Commissioner and their properly authorized agents or employees. Any person violating this Section shall, upon conviction, be fined the sum of ten ($10.00) dollars and the costs of prosecution.

SECTION 19: All certificates as Pharmacists and Assistant Pharmacists, Medical or Veterinary Dispensers, and Drug Dealers, shall at all times be conspicuously displayed in the place of business or dispensary where the registrant is engaged as such. Any registrant violating this Section shall, upon conviction, be fined to pay the sum of ten ($10.00) dollars and the costs of prosecution.

SECTION 20: Registration of place annually.

SECTION 21: The Board of Pharmacy shall make, from time to time, uniform rules and regulations, which are to govern it and the Drug Commissioner and all employees in the enforcement of this Act. It shall prescribe, publish and furnish all application forms for registration, which are required under this Act.

SECTION 22: It shall be unlawful for any person who is not a registered Pharmacist, registered Assistant Pharmacist, registered Medical or Veterinary Dispenser, or Drug Dealer, or who is not under the direct and immediate supervision of either of such registrants operating within their lawful spheres, to compound, manufacture, sell or distribute at retail any potent drugs or poison as hereinafter defined, excepting only, that this provision

shall not apply to the sale of drugs and poisons when intended for agricultural, technical and industrial use, and shall not apply to the personal administration of drugs and medicines by dentists, physicians and veterinarians in keeping with Section 7 of this Act. It shall be unlawful for Medical or Veterinary Dispensers to compound, sell and distribute potent drugs or poisons, except for use by bona fide patients, who are under their medical treatment. It shall be unlawful for any Drug Dealer to compound or manufacture Potent Drugs, poisons or preparations containing the same, and it shall be unlawful for such Drug Dealer to sell or distribute potent drugs and poisons, except in original packages as prepared by and under the supervision of a registered Pharmacist of this or some other State, properly labeled to meet all requirements of the law, and bearing the name of the original distributor or manufacturer. Any person violating the provisions of this Section shall be guilty of a misdemeanor, and upon conviction thereof shall be sentenced to pay a fine of not less than fifty ($50.00) dollars, nor more than five hundred ($500.00) dollars, or to imprisonment for not more than one (1) year, either, or both, in the discretion of the court.

SECTION 23: (*A*) The term poison shall include the compounds and salts of antimony, arsenic, ———————— etc., and shall include all compounds, combinations, mixtures and preparations of the same, which contain more than one (1) adult medicinal dose of said substances in each one-half fluid ounce, if liquid, and one-half avoirdupois ounce if solid, of such compounds, combinations, mixtures and preparations, or when in the form of capsule, pill, tablet, powder or other like sub-divisions there is contained more than one adult medicinal dose in two or less of such capsules, pills, tablets, powders, or other like sub-divisions. The term poison shall further include all substances of which an adult medicinal dose when in original form is less than two grains if solid, and less than two minims if liquid, and the compounds, combinations, mixtures and preparations thereof, when more than one adult medicinal dose is contained in one-half fluid ounce if liquid, and one-half avoirdupois ounce, if solid, or when in capsule, pill or tablet, powder or like sub-division more than one such adult dose is contained in two or less of such sub-divisions.

(*B*) The term potent drug shall include all poisons as defined in sub-section (*A*) hereof, and all preparations containing more than five percent (5%) of alcohol by volume when intended for medicinal use, and shall further include all substances, the adult medicinal dose of which is less than sixty (60) grains, if solid, or sixty (60) minims, if liquid, and all compounds, combinations, mixtures, and preparations thereof, which contain more than an adult medicinal dose in each fluid ounce, if liquid, and each avoirdupois ounce, if solid, or when in capsule, pill, tablet, powder or other like sub-division more than one adult dose is contained in less than ten (10) of such sub-divisions.

(*C*) It shall be the duty of the State Board of Pharmacy to determine from time to time the adult medicinal dose of all substances, which are not specially named as poisons or as potent drugs, and which are to be determined as such by their dosage, and having so determined such other poisons and potent drugs, the State Board of Pharmacy shall publish lists of such other poisons and potent drugs so determined, and after ninety (90) days from date of such publication such poisons and potent drugs shall be delivered, dispensed and sold, only as may be provided by law. Within ninety (90) days after publication of what the State Board of Pharmacy determines to be a poison or potent drug, on the basis of the adult dose thereof, any person interested in such determination may apply for a hearing before the Board to submit proof that such determination with reference to any particular substance, compound, combination, mixture, or preparation, is erroneous, and if the Board becomes so satisfied, it shall rescind its order and publication with reference to such particular substance or substances, compound, mixture or preparation. In case the Board decides against the complainant, he shall have the right within thirty (30) days to appeal to any court of record having jurisdiction, for a review of the decision of the Board, and it shall act in compliance with the order of the court on final adjudication, and pending such final adjudication the determination of the Board with reference to the substance or substances, combination, compound, mixture or preparation, shall be held in abeyance.

SECTION 24: All chemicals, drugs, their compounds and preparations when of poisonous or potent character as defined in this Act, and when dispensed, distributed, or sold at retail to the consumer, except in original packages as manufactured and put up outside of the State in keeping with the laws of some other state or country, shall be in containers bearing a label for ready inspection, upon which such poisonous or potent drug content is plainly shown, as also the percentage thereof, contained therein: Provided, that when such chemicals and drugs are dispensed in keeping with a written record as made by a registered physician, dentist or veterinarian, and such written record is retained or filed by a pharmacist, physician, dentist or veterinarian, for at least one (1) year, the label requirement herein shall be satisfied when the container of the chemicals and drugs so dispensed bears a number or mark corresponding with a number or mark on the written record, so that it may be readily identified. Whenever chemicals and drugs, their compounds and preparations, manufactured outside of the State are dispensed, distributed or sold in original packages at retail to the consumer, without meeting the label requirements herein provided, it shall be the duty of the State Board of Pharmacy, by, and with the assistance of the State Drug Commissioner, to determine poisonous or potent drug content as herein defined, and upon such determination it shall list and publish the article under the name given it by its producer or manufacturer, as of either such poisonous or potent drug content, and thereafter such article shall be dispensed, distributed or sold, at retail within this State, only in compliance with the other provisions of this Act.

SECTION 25: Whoever knowingly sells or delivers to any person otherwise than in the manner prescribed by law, any poison or potent drug as defined in this Act, or sells or delivers in the manner otherwise prescribed by law any poison as defined in this Act, but without the written order of an adult, to a minor under sixteen (16) years of age, shall be fined not less than ten ($10.00) dollars, nor more than fifty ($50.00) dollars for each offense.

SECTION 26: Whoever sells or delivers to any person a poison as defined in this Act, except upon the written record of a registered physician, dentist or veterinarian, made and kept as provided in this Act, without having first learned by due inquiry that such person is aware of the poisonous character thereof, and that it is desired for a lawful purpose, or without plainly labeling the word "POISON," and the names of two or more antidotes therefor, upon the box or package containing it, or delivers such poison without recording in a book kept for that purpose for which it is alleged to be used, the date of its delivery, and the name and address of the purchaser, and the name of the dispenser, or fails to preserve said book for five (5) years, and submit it at all times for inspection to proper officers of the law, shall be fined not less than ten ($10.00) dollars nor more than fifty ($50.00) dollars for each offense.

SECTION 27: In this Section and its necessary Sub-Sections, are to be included the N. A. R. D. Model for a Narcotic Law.

SECTION 28: In this Section and its necessary Sub-Sections, are to be included the provisions of a Pure Food Law as based upon the terms and requirements of the Federal Food and Drugs Act.

THREE INJUNCTIONS.

First: Find yourself. Find who you really are and what you like best. Know your weak points and your strong ones. Only by knowledge of our weaknesses and constant effort can we overcome our failings. Find what you really want to be. Determine what you really want to be. Determine what you are naturally best adapted to do. Don't be misled by false glitter or another's success in a different occupation. Find your groove, your talent, and stick to it. Find yourself!

Secondly: Save yourself. Be careful of your physical being. Your health is a fortune and should be guarded more closely than your dearest possession. Learn economy of steps, of motion, of time. Be physically fit for any reasonable demand on your strength. Then go about your daily work with vigor, with enthusiasm, with pleasure. Save yourself.

Lastly: Give yourself. Give the world the best on your part. Don't expect to give a second-class article and receive pure gold. One's mind grows by sharing as well as does one's character. —W. H. CLEMENS.

EDITORIAL NOTES

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MAJOR D. A. COSSAR COMING TO THE UNITED STATES.

The Editor is in receipt of a communication from Mr. C. L. Butchers, Secretary of the Pharmaceutical Society of Australasia, which is of interest to pharmacists of this country. He writes:

"You will remember that I wrote you some three or four months ago relative to the proposed visit of Major Cossar to America. No doubt you have been wondering when Major Cossar will arrive in the United States. Up to the present time he has been in London and I ascertained to-day that he is likely to leave there for America about the end of March. I thought I would take the first opportunity of advising you so that you may have some idea of his arrival in your country.

"You will be pleased to hear that while Major Cossar was in London he succeeded in inducing the British War Office to grant twenty-one commissions to pharmacists in active service in France and Egypt. You will also be interested in the editorial in the February issue of the 'Australasian Journal of Pharmacy,' wherein reference is made to the satisfactory result of the investigation by a Royal Commission into the affairs of the Defence Department."

Pharmacists of the United States will be glad to welcome Major Cossar, and we may hope that he will have information to give us that will be helpful in our promotion of a Pharmaceutical Corps for the U. S. Army.

ORGANIZATION AND WORK OF PHARMACISTS IN FOREIGN ARMIES.

Caswell A. Mayo, speaking before the Committee on Military Affairs of the House on the subject assigned him, said in part, as follows:

"Pharmacists rank as commissioned officers in the armies of all the countries except those of the United States and a part of those of Great Britain, for by a singular anomaly, some of the Canadian pharmacists have been given commissions and the Australian army has a regularly organized corps of commissioned pharmacists with a major at its head, while under the title of quartermaster England herself has commissioned some pharmacists.

"In the French army the head of the corps is the brigadier-general. He is, or before the war was, a colonel in the German, the Japanese, and the Spanish armies. He is a lieutenant-colonel in the armies of Italy, of Belgium, of Holland and of Austria; he is a major in the armies of Switzerland, of Norway, of Sweden, and of Australia, for, notwithstanding the fact that the Australian troops are part of the British army they maintain a separate organization, which, in this respect at least does not conform with that of the mother country.

"The history of the Medical Department of the United States Army, compiled by Assistant Surgeon Harvey E. Brown, under the direction of the Surgeon-General, shows that from the organization of the Continental Army in 1775 down to 1821, the United States Army was provided with an Apothecary General as well as with a Surgeon-General, and that the Apothecary General and his assistants were specifically charged with the provision, testing, and distribution of medical and surgical supplies. In the year 1821 all the regimental surgeons were done away with as well as the Apothecary General and his assistants under a régime of most searching economy, consequently the recognition of pharmacy in the United States Army by the introduction of such a corps as we propose would really be returning to first principles and not to a novelty as many think."

THE MEDICAL DEPARTMENT OF AN ARMY OF FIVE MILLION MEN.

It has been stated by authorities on the subject that an army of five million men will be required of the United States; probably

no less than an army of half that number has been spoken of by anyone familiar with the needs of the situation. If this is the case, upwards of 30,000 medical men will be called for. The most conservative will admit that qualified pharmacists can relieve the doctors of some of their work, or that which they now must do. Dr. J. Madison Taylor, of the Medical Department of Temple University, in speaking before the Committee on Military Affairs of the House, prefaced his remarks by saying:

"We physicians who appear before your committee would count ourselves blameworthy in advocating the establishment of a Pharmaceutical Corps in the military service, did we not believe on good authority we were rendering an important service to the Nation and the Nation's defenders."

Later in his able presentation, Dr. Taylor said:

"Among the particular services a specially educated pharmacist could render are these:

"He could supplement and contribute to the correlating data for the surgeon, in short in the 'paper work.'

"He could perform a large part of the clinical laboratory work. Urinalyses, blood examinations (morphologic or pathologic), in Cytology, Serology, Vaccine preparations, Bacteriology in the preparation of microscopic slides; in the examination of gastric contents, feces, exudates, transudates, and the like.

"He could apply tests such as Wassermann, Noguchi, Widal, etc., all chemical procedures; he could keep all the material for these tests up to date.

"He could supplement in X-ray work; keep the mechanism of Roentgenology in order, print plates, etc.

"Many chemical problems arise in connection with poison cases. He could prepare all special materials for such procedures as hypodermocylsis, blood transfusion, Carrell-Dakin solution, etc. He could examine water, water supplies, all articles of food and drink, milk, meats, and the like, which must be critically estimated.

"Those who desire to become candidates for military service are already seeking instruction and experience in meeting minor surgical and medical emergencies, in the dressing of wounds, in the adjustment of dressings, solutions.

"One surgeon and two pharmacists could probably do as much good work as two or even three surgeons.

"The claim is made by the opponents of the Pharmaceutical Corps that the medicines or drugs used in the army are very simple and few, and served mostly in tablet form, readily handed out by any bright, alert enlisted man selected and trained for the purpose. How about the poisons? How many blunders are made by such an elementary form of dispensing? Full knowledge of the properties of death-dealing chemicals is an absolute essential for the man who handles them.

"I have been credibly informed that the official Army Drug Table authorized by the Secretary of War comprises nearly 600 drugs and drug products of all kinds, *including poisons of the deadliest character.* Also that this drug table or list is admitted to be only the 'minimum number of articles essential to the Nation's Medical activities.'

"Obviously the preparation, compounding, and especially the dispensing of such dangerous products demands trained pharmacists. Note the gravity of this problem, the hideous peril run by our home defenders by such haphazard distribution.

"How many fatal blunders have occurred? How can the surgeon keep control of the leaks in the chain of procedures from bottle to patient? How many curious inexplicable cause of deaths?

"Should an error be suspected by the enlisted man who dispenses poisons, there is every temptation to keep quiet and thus escape blame. Clearly our home defenders deserve fully as much special skill in the distribution of drugs as do our home makers."

MILITARY MORALS.

One of the uses of the proceeds of the Liberty Loan that will appeal strongly to the great mass of American people is the care and attention given to the moral welfare and protection of the American soldiers.

It is to the glory of American arms and American national character that of the men who wear the United States uniform a high standard of conduct is expected and demanded, and provided for. Kipling's "Single men in barracks" are not to find their prototypes in the American Army.

Gen. Pershing says there is no cleaner-living body of men in the world than the American Army in France.

THE COMMON FROG'S HEART UNSUITABLE FOR DIGITALIS STANDARDIZATION.

The isolated heart of the common frog, *Rana temporaria*, should not be used for accurately standardizing digitalis, since it absorbs part of the active principles, and therefore behaves differently from the heart of the edible frog, *R. esculenta*, which alone should be employed for the purpose. The common frog's heart may prove useful as a control; and rough determinations within ten percent of accuracy may be made with it with digitalis and strophanthus.—M. Krough (*Ugeskrift for Laeger, J. Amer. Med. Assoc.*, 1917, 68, 1672).

SACCHARIN AS A SUGAR SUBSTITUTE.

Speaking at a conference at the Food Saving Exhibition, in London, January 31, Sir Charles Bathurst, M. P., announced that the output of saccharin would be more than trebled during the next three months. Its price would be reduced, and supplies made available for people who took tea and coffee in restaurants and teashops where, under the new order, no sugar would be supplied for such beverages.—*Pharmaceutical Journal and Pharmacist.*

Prof. Charles H. LaWall, president-elect of the American Pharmaceutical Association, was given a dinner by the Philadelphia Branch of the American Pharmaceutical Association, March 5, at the City Club of Philadelphia. Besides members of this Branch, President A. R. L. Dohme, Dr. Harvey W. Wiley, a large delegation from New York and members of the Chemical Society and Medical fraternity were present. Dr. H. V. Arny, of New York, presided as toastmaster. A delightful part of the speaking program was the tribute paid to the mother of Professor LaWall and to Mrs. LaWall, both by speakers and in the response of the guest of honor. The large attendance from New York was a splendid evidence of the esteem in which the latter is held, and also of the cordiality of the Association members.

Dr. Frederick B. Power, who is engaged in the Bureau of Chemistry and also on the Chemistry Committee of the National Research Council, has been elected president of the Washington Chemical Society and vice-president of the Washington Academy of Sciences. Dr. Power has been a member of the American Pharmaceutical Association since 1872.

F. A. Upsher Smith has received fine responses to his efforts in behalf of conserving sugar, glycerin and alcohol. Most of the departments of the Government interested in these products expressed their appreciation of the efforts.

Lieutenant Commander C. B. Mayo, who is on duty in the Bureau of Navigation, in Washington, has received cabled notice of the safe arrival in France of his brother, Ensign Thomas F. Mayo, an intelligence officer in the Naval Aviation Corps. These officers are the sons of Col. John P. Mayo. U. S. Immigration Commissioner at New Orleans, who was formerly head of the Mayo Drug Company, of Columbus, Miss., and nephew of Caswell A. Mayo, editor, *American Druggist*.

Thomas Tyrer, F.C.S., F.I.C., died in London, February 21, aged 74 years. His scientific education was definitely entered upon in 1861 under the celebrated German chemist, Hoffmann; he studied biology under Huxley and physics under Tyndall. While most of the work of the deceased was in chemical lines, he was president of the British Pharmaceutical Conference in 1907. The subject of his presidential address was "Research," and had particular application to pharmaceutical science in all its aspects. The closing words sounded a note of appeal for increased and effective attention to the cultivation and development of research principles and methods. He was a leader in his particular field of activity, highly honored and respected in his own country and favorably known in the United States.

Hugh Craig, for a number of years editor of the *N. A. R. D. Journal*, has accepted a position with Frederick Stearns & Co., of Detroit. A farewell dinner was given him by the Chicago Branch, A. Ph. A. Wishes for success in his new activity were tendered to him by the members, and expressions of regret were general because of his leaving Chicago.

The Weinstein Prize has been founded by the New York Retail Druggists' Association in memory of the late Dr. Joseph Weinstein, who for many years was active in the A. Ph. A. The prize consists of a microscope to be awarded for proficiency in analytical chemistry to a student of the graduating class of the New York College of Pharmacy.

OBITUARY.

ALFRED BIRCH HUESTED.

In the last issue of the JOURNAL a brief sketch of Dr. A. B. Huested is printed, a cut which was to accompany the same came too late for use at that time. Dr. Willis G. Tucker, dean of the Albany College of Pharmacy, has prepared a sketch of the deceased for the Albany Academy and in this the writer pays well-deserved tributes to the deceased. We can quote only briefly and have chosen a paragraph which depicts Dr. Huested as we knew him.

ALFRED B. HUESTED, M.D., PH.G.

"He was growing older but his eye was bright, his step elastic, his manner as buoyant and his greeting as cheery and as cordial as ever. His mind was to him his kingdom. It was well stored with knowledge and upon its accumulated stores he could at all times draw for his own edification, refreshment and recreation, and for the instruction and entertainment of others. He was a conscientious, just and fair-minded man, whose disposition was philosophical, and whose attitude on any matter of moment was always and instinctively reasonable, tolerant and free from prejudice. To the close of his life he retained in a remarkable degree his youthful vigor, health and mental alertness, and this was largely due to the general sanity of his life, the acts of which were prompted by reason and not by impulse or passion. His bent was charitable and his disposition kindly. He never spoke angrily or intemperately, seldom even hastily, and he was as slow to take as he was unwilling to give, offense."

Dr. Tucker closes his sketch as follows:

"Success in life is variously measured. Fame, influence and wealth are thought by many to denote it, but others, and with saner view, hold that life is successful which has been devoted to the conscientious performance of duty, to useful work honestly done, to unselfish service to mankind. Judged by this standard, the life here briefly and imperfectly delineated, was preëminently successful, and he who lives such a life can anticipate its inevitable close with serenity because its end is peace."

FERDINAND C. SCHAPPER.

Ferdinand C. Schapper, born at Besselich, near Coblenz, Germany, November 1, 1853, died after an illness of 10 days on February 24, of pneumonia. Mr. Schapper was a graduate of the Real gymnasium, Friedrichsdorf, in 1870. He went to Blue Island, Ill., in 1872, starting in with his uncle as druggist. In 1877 he went to Chicago and started a drug store on Halstead Street, near Willow, then on the northern extremity of the city. In 1885 he became the Chicago representative of the Roessler & Hasslacher Chemical Company, of New York, and was the first resident representative in this particular industry, building up a large business. After continued services extending over a period of 32 years he retired last March. He was a member of the American Pharmaceutical Association since 1913.

SAMUEL MANSFIELD.

The late Samuel Mansfield, who for many years held the office of Treasurer of the Maryland College of Pharmacy previous to it becoming a department of the Maryland University, died suddenly on March 9, 1918. He was a member of the American Pharmaceutical Association and a man of character and repute, not as a pharmacist only, but for reliable business methods.

He was much esteemed by his colleagues of the Maryland College of Pharmacy for his accuracy and devotion to its welfare. He was

also high up in the Masonic orders and held the office of Treasurer.

He was born in Kent County, Md., Sept. 27, 1845, and became an apprentice in pharmacy to his cousin, the late James W. Bowers, in 1865—in the Pharmacy where he died, and which his cousin established at 1001 W. Baltimore Street in 1851. Mr. Bowers retired from the business in 1877 and Mr. Mansfield became his successor, forty years ago. He was in his 73rd year and in pharmacy 53 years at the time of his death.

Mr. Bowers gained a substantial knowledge of pharmacy in three of the best stores of Baltimore and conducted an ethical business on his own account which was continued by Mr. Mansfield to the time of his death.

JOHN F. HANCOCK.

SOCIETIES AND COLLEGES.

HEARING ON THE EDMONDS BILL.

Under Editorial and Editorial Notes reference has already been made to the hearing on the Edmonds bill before the Committee on Military Affairs of the House; here we are in part drawing upon the report in the *N. A. R. D. Journal* for other portions of the presentation. It is gratifying to note that no less than fifty-one organizations were represented. It was evident that the committee had heard from the Surgeon-General and that they were more or less impressed that he was the most competent judge of how best to increase the efficiency of the Medical Department of the Army.

Representative Edmonds opened the hearing with the statement that pharmacal interests were represented from the Atlantic to the Pacific and from the Great Lakes to the Gulf of Mexico. He then asserted that the merits of the bill would be presented by selected speakers, and he introduced them to the committee. Dean Wulling insisted that the judgment of pharmacists is better than that of physicians as far as pharmacal questions are concerned, because pharmacists are specialists in their profession and better qualified to pass on pharmacal matters. He maintained that pharmacists are not in a position to-day to give the army the efficient service it requires and is entitled to, simply because there is no pharmacal corps in the army. The resources of pharmacy can not be marshalled under the existing organization. The American soldier at the front is to-day denied the pharmacal service which the civilian at home enjoys. Dean Wulling showed how the standards of pharmacy are being raised all over the country, and its efficiency, regularly increased. He said that the pharmacist and the physician are allies in the safeguarding of health and life.

He controverted the statement that manufacturers are opposed to the Edmonds bill, which was shown to be the case when Mr. Crounse, of the N. W. D. A., read a very emphatic and patriotic letter from Dr. William Jay Schieffelin, of New York, favoring the bill. Dean Wulling pointed out that the main question was: "What shall and must be done to give the sick soldier the best service?" In private life there is the licensed pharmacist provided by state boards of pharmacy. In the army this is not the case. He resented the allegation that pharmacists are self-seeking in urging the passage of the Edmonds bill. He said that most of the restrictive legislation on the statute books of the states had been placed there by pharmacists themselves. He admitted that officers had detailed pharmacists here and there in the army to fill certain positions where their qualifications and experience could be availed of, but he contended that, because of their position as privates, they were not consulted, and could not with propriety advise their superiors.

Dr. Charles E. Caspari pointed out that the United States Pharmacopoeia and National Formulary, which provide the standards for drugs and chemicals in the enforcement of the food and drugs act and furnish the tests for the purity of drugs and chemicals, are in the main the work of pharmacists. Physicians select the drugs to go into the United States Pharmacopoeia and National Formulary, but pharmacists determine their purity. Many physicians are not qualified to make a solution for the treatment of wounds, Doctor Caspari said. The pharmacist works hand in hand with the physician, not under him, and his work is as important and necessary to the public welfare as that of the physician.

Samuel C. Henry deprecated the fact that there has been too much talk about rank and pay for pharmacists in the army. If that had been the consideration, he would not be before the Committee urging the passage of the Edmonds bill. With a lifetime spent in prac-

tical and professional pharmacy, pharmacists surely were in a better position to advise the Committee with respect to the need of a pharmacal corps in the army than physicians. Every day physicians ask pharmacists for advice as to the compounding of prescriptions and thereby save human lives.

He left it to the Committee to say whether or not conditions in the army as revealed by recent testimony before congressional committees do not demand a change in the existing order of things for the welfare of the boys in the trenches. He then told of a communication he had received from a druggist who had just paid the last of an indebtedness of $10,000 on his store and who had been drafted to serve in the army not as a pharmacist, while others, without any experience in pharmacy whatever, were rendering pharmacal service. Mr. Henry suggested that the Committee ask the War Department for the name and address of every man in the army dispensing medicines, and in that way learn of facts relating to this part of the service.

NEW JERSEY IS SUCCESSFUL IN SECURING A PREREQUISITE LAW.

After many efforts on the part of New Jersey pharmacists a prerequisite law has been placed on the statute books of their state. News of this kind is always welcome and shows that progress is being made for better pharmacy, and the persistent workers of the New Jersey Pharmaceutical Association and the State Board of Pharmacy are to be congratulated on their success.

LOUISIANA N. A. R. D. MEMBERS PREPARE FOR THE ANNUAL CONVENTION AT NEW ORLEANS AND ENTERTAIN PRESIDENT W. H. COUSINS.

A committee composed of A. Di Trapani, Robert F. Grace, W. H. Cousins, Geo. W. McDuff, Christian Schertz, Adam Wirth, Edward Henry Walsdorf, Andrew McCullen, representing various pharmaceutical associations met at the Grunewald Hotel, New Orleans, March 19, to organize the committee to take charge of the Convention of the National Association of Retail Druggists. The date for the convention was set for September 16–20 and the Grunewald Hotel was selected as headquarters.

The following officers and chairmen were elected: George W. McDuff, chairman; M. T. Breslin, vice-chairman; Edward Henry Walsdorf, secretary; Vic. Masson, treasurer.

Committee names were: Exhibits, Christian Schertz, chairman; A. D. Parker, vice-chairman.

Program, Robert F. Grace, chairman; S. G. Steiner, vice-chairman.

Registration, A. Di Trapani, chairman; John W. Phillips, vice-chairman.

Transportation, Adam Wirth, chairman; F. A. Dicks, vice-chairman.

Music and Decorations, M. Stolzenthaler, chairman; W. H. Curtis, vice-chairman.

On Monday, March 18, a banquet was given in honor of W. H. Cousins, president of the N. A. R. D., at Hotel De Soto. The pleasant affair was well attended by representatives of various associations, and druggists of New Orleans joined in the festivities.

PORTRAIT OF DR. J. O. SCHLOTTERBECK PRESENTATION DURING FIFTIETH ANNIVERSARY CELEBRATION OF UNIVERSITY OF MICHIGAN COLLEGE OF PHARMACY.

A fine life-size portrait of the late Dr. Julius O. Schlotterbeck will be presented to the College of Pharmacy of the University of Michigan by the Alumni next June, during the celebration of the 50th anniversary of the College.

Confident of the support of the Alumni body, a group of Detroit Alumni have contracted with Leon Makielski, an artist who has done much notable portrait work in Ann Arbor, to paint this portrait. His selection is approved by Mrs. Schlotterbeck, who was asked to nominate the artist, and she will coöperate with him to secure a wholly satisfactory likeness.

While primarily the Alumni have been called upon to donate toward the expense, it is assumed that many friends of Dr. Schlotterbeck will desire to contribute. The members of the committee in charge are: A. S. Parker, F. A. Thompson, G. M. Schettler, L. A. Seltzer, J. W. T. Knox, W. H. Blome, O. W. Gorenflo and F. F. Ingram.

Dean A. B. Stevens is the treasurer, to whom remittances should be made payable, but sent to F. F. Ingram, Jr., Secretary, Detroit, Mich.

THE PHARMACIST AND THE LAW.

MODIFICATION IN EXPLOSIVES ACT.

In conjunction with A. Homer Smith, of the Medical Section of the Council of National Defense, Chas. J. Lynn, President of the American Drug Manufacturers' Association, held several interviews with the Bureau of Mines and secured a comprehensive interpretation of the law as it applies to the drug trade. This matter was formally incorporated in a letter from the Medical Section to the A. D. M. A. that was first submitted to the Bureau of Mines for approval. It can, therefore, be regarded as an accurate reflection of the Bureau's interpretation.

"1. The following gives information pertaining to the Explosive License Requirement Act concerning the application of the Act as related to medicinal substances.

MANUFACTURERS.

"*a.* Require manufacturers' license. (Ed. Note—only obtainable from Bureau of Mines.)

"*b.* Do not require Foreman's license for Department heads.

"*c.* Must have on file certified actual copies or certified photographic copies of customers' license before deliveries can be made. The mere information of customers' license number will not be sufficient to justify shipment or delivery of items coming under the operation of the Act. Likewise, manufacturers must file with their suppliers a certified copy of their own license in order to obtain their crude materials.

"*d.* The Bureau of Mines will accept the ordinary trade records of transactions covering medicinals in lieu of the specific records required of manufacturers, vendors, and purchasers of explosives as such. *They do require,* however, that the number of the buyer's license must be placed on his order covering the ingredients purchased and filed by the seller in the usual way and also must appear on the invoice sent the buyer covering his purchase.

"*e.* Medicinal compounds containing any of the ingredients named where the compound as such is non-explosive are not affected. Medicinal products containing explosive ingredients in simple form such as chlorate of potash tablets, permanganate of potash tablets, when sold in quantities of one ounce or more, come under the operation of the Act and require license all the way down to the ultimate purchaser from the retailer."

WHOLESALERS.

"Require Vendors' license unless they also manufacture, in which event a manufacturer's License is necessary which will cover their transactions.

"Paragraphs *b*, *c*, *d* and *e*, under 'Manufacturers,' apply to wholesalers."

RETAILERS.

"*a.* Require vendors' license.

"*b.* One license for the store covers proprietor and clerks.

"*c.* Cannot sell in quantities of one ounce or more on prescription or otherwise except to customer having purchasers' license. Such purchasers' license need not be filed with retailer, but must be shown in every instance before delivery is made.

"*d.* No special record required for sales of quantities of less than one ounce, but, unless on prescription which filed becomes an acceptable record, sales of quantities of one ounce or more must be recorded as to purchaser's license number, name, address, date of sale, item and quantity sold.

"*e.* Must file with sources of supply certified copy of his vendors' license before his supplier can make deliveries."

PHYSICIANS.

"*a.* If a dispenser, must have a vendor's license to purchase and dispense in quantities of one ounce or more.

"*b.* Cannot dispense in quantities of one ounce or more to patient who does not hold a purchaser's license.

"*c.* If a prescriber, only, will require a purchaser's license to obtain supplies in quantities of one ounce or more for his own use.

"*d.* No special records required."

CONSUMERS.

"Require a purchaser's license to buy in quantities of one ounce or more.

EXEMPTIONS (MEDICINAL).

"Nitroglycerine in official U. S. P. solution or in form of pills, granules or tablets containing not more than $^1/_{50}$th grain each.

"PLEASE NOTE: The foregoing apply only to medicinals and not to explosives sold for other purposes. If a salesman personally sees customer's license and places the license number on the customer's order when sending it to his house, then his house can assume the responsibility of making delivery without having a certified copy of the customer's license on file. To expedite deliveries on mail, telephone and telegraph orders received direct

from the customers, however, it will be found advisable to have certified copies of customers' licenses on file."

(Signed) A. HOMER SMITH,
Asst. to the Chief, Medical Section.

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UNITED STATES PUBLIC HEALTH SERVICE.

List of changes of duties and stations of commissioned and other officers of the United States Public Health Service:

Pharmacist A. M. Roehrig. Relieved at Buffalo, N. Y. Proceed to Marine Hospital, Savannah, Ga. Feb. 15, 1918.

Pharmacist W. L. Stearns. Relieved at Stapleton, N. Y. Proceed to Marine Hospital, Buffalo, N. Y. Feb. 15, 1918.

Pharmacist E. M. Holt. Relieved at Savannah, Ga. Proceed to Washington, D. C., and report to Assistant Surgeon-General W. G. Stimpson for duty. Feb. 15, 1918.

Pharmacist L. C. Spangler. Relieved at the Purveying Depot. Proceed to Marine Hospital, Stapleton, N. Y. Feb. 15, 1918.

Pharmacist Herschel Megaw. Relieved at the Bureau. Report for duty at the Purveying Depot, Washington, D. C. Feb. 15, 1918.

Asst. Epidemiologist F. E. Harrington. Relieved at Anniston, Ala. Proceed to Hattiesburg, Miss., on special temporary duty. Feb. 16, 1918.

Sanitary Engr. C. N. Harrub. Proceed to Jacksonville, Fla., on special temporary duty. Feb. 12, 1918.

Asst. Sanitary Engr. Frank R. Shaw. Relieved at Hattiesburg, Miss. Proceed to Anniston, Ala., on special temporary duty. Feb. 16, 1918.

Scientific Asst. W. L. Wood. Proceed to Tenafly, N. J., on special temporary duty. Feb. 12, 1918.

Pharmacist Charles Miller. Re-assigned to duty at the Marine Hospital, Key West, Fla., from Feb. 13, 1918. Feb. 20, 1918.

Sanitary Chemist A. F. Stevenson. Proceed to Newport News, Va., for conference in regard to installation of a pasteurizing plant. Feb. 25, 1918.

Scientific Asst. G. S. Bote. Proceed to Cincinnati, Ohio, Lexington, and Louisville, Ky., for inspection of pasteurizing plants in connection with proposed establishment of plant at Maysville, Kentucky. Feb. 23, 1918.

Pharmacist Edward Rogers. Relieved at Ellis Island, N. Y. Proceed to Marine Hospital, Boston, Mass. March 5, 1918.

Pharmacist G. K. Hepler. Relieved at Marine Hospital, Cleveland, O. Proceed to Marine Hospital, Fort Townsend, Wash. March 5, 1918.

Pharmacist F. A. Stump. Relieved at Marine Hospital, Boston, Mass. Proceed to Marine Hospital, Cleveland, Ohio. March 5, 1918.

Asst. Epidemiologist C. C. Applewhite. Relieved at Atlanta, Ga. Proceed to Tenafly, N. J., on special temporary duty. Feb. 28, 1918.

Asst. Sanitary Engr. C. P. Rhynus. Relieved at Columbia, S. C., Rejoin station at Washington, D. C., for duty in connection with the investigation of steam pollution. March 4, 1918.

Chief Sanitary Inspector Wallace Purrington. Attend convention Southeastern States Health, Food and Drug Officials' Association, at Savannah, Ga., March 6–7, 1918. March 2, 1918.

Consulting Epidemiologist W. B. Wherry. Proceed to Berea, Kentucky, to coöperate in investigations of meningitis. Feb. 4, 1918.

Scientific Asst. J. Floyd Sannar. Relieved at Detroit, Michigan. Proceed to Waterbury, Conn., for duty in studies of industrial fatigue. Jan. 31, 1918.

Sanitary Bacteriologist C. H. Spaulding. Relieved in connecteon with investigations of coastal waters, and proceed to Macon, Ga., for duty in malaria investigations. Jan. 23. 1918.

BOOK NOTICES AND REVIEWS.

U. S. Dispensatory, 20th Edition.—Besides the latest editions of the United States Pharmacopoeia and National Formulary, every well-regulated pharmacy should possess a library, even if only one shelf full, of reference books. Among those the most important is a dispensatory. All countries have commentaries on their pharmacopoeias, as, for instance, Hager in Germany, Vogl-Ludwig in Austria, Dorvault in France, the Pharmaceutical Codex in Great Britain, Orosi in Italy, etc. Pharmacy in the United States can justly be pround in having not only one but three dispensatories.

The oldest one of these is the "U. S. Dispensatory," the 20th edition of which has just been published. Let me quote the following from the preface of the first edition of this work, dated Philadelphia, January 1833. "We have a National Pharmacopoeia, which requires an explanatory commentary, in order that its precepts may be fully appreciated, and advantageously put into practice. On these accounts, it is desirable that there should be a "Dispensatory of the United States," which, while it embraces whatever is useful in European pharmacy, may accurately represent the art as it exists n this country and give instruction adapted to our peculiar wants." Eighty-five years have passed since these words were written by Dr. George B. Wood and Dr. Franklin Bache and they still hold good this very day. From the small "Wood and Bache Dispensatory," of 1073 pages, the book has now become a master work, an authoritative encyclopedia on pharmacy, chemistry, botany, materia medica and therapeutics. The Historical Title Page, page ii, gives an excellent account of the evolution of the U. S. Dispensatory during its life of 20 editions.

The 20th edition just published and before us is a stately volume of 2150 pages, bound in buckram, which wears much better than leather. The editorial staff consists of experts of national and even international reputation, namely, Professors Joseph P. Remington, Samuel P. Sadtler, Horatio C. Wood, Jr., Henry Kraemer, Charles H. LaWall and John F. Anderson. These men are so well known to both the professions of pharmacy and medicine that no further introduction is necessary. It is to be regretted that the editor-in-chief, Joseph P. Remington, died while this edition was in the press and could not see the present stately master volume.

That the 20th edition of the Dispensatory was not rushed or revised in haste can be seen from the following dates: The U. S. P. IX was published in August 1916, and the present edition of the Dispensatory in March 1918, and consequently 20 months of hard work were required to prepare the 20th edition of the "U. S. Dispensatory." The work has been brought up to date in conformity with the rapid advances in the pharmaceutical and medical sciences. No other book in the English language can be compared favorably with this edition of the U. S. Dispensatory in the extent of subjects and the method of treatment.

Among the valuable features of the present edition are the lists of synonyms, the insertion of alternative quantities in the formulae of the official preparations, the use of diacritical marks as a guide to pronunciation, and the list of official preparations at the end of the monographs of the official drugs. The use of these diacritical marks is a feature which should be especially appreciated by teachers and students and should also be of great help to make the pronunciation of Latin titles more uniform. The dose of each drug is given at the end of the description of its therapeutic uses, whereby the information which is usually wanted in a hurry is found in an instant. The quantities given are not intended as strict minimum and maximum doses, but merely to serve as a guide to the amounts generally used.

The 20th edition of the "U. S. Dispensatory" is a true commentary upon the latest revisions of the United States and British Pharmacopoeias. This, together with comments upon those preparations of the German Pharmacopoeia and the French Codex which are used generally in the United States, comprises Part I, which contains 1221 pages. How thorough the monographs in this part are written can be seen from the follow ng two examples: Under *Acidum Salicylicum*, U. S., Br., the arrangement is as follows: U. S. P. and Br. P. definitions, Synonyms in English, German, French, Italian and Spanish, History, Preparation, Properties, Assays of U. S. P. and Br. P., Tests, Uses and Therapeutic Action, Dose and Official Preparations in U. S. P., Br. P., and N. F. The monograph of *Zingiber*, U. S., Br., is thus arranged: Defini-

tions, Synonyms, Commercial Varieties, Descriptive paragraphs on Jamaica, African, Calcutta, Calicut, Cochin and Japanese Ginger, Constituents, Uses, Dose and Official Preparations. The three full, double-column pages are proof of the thoroughness of this monograph. As a commentary on the Pharmacopoeias this part can not be excelled. One of the features are the many references to pharmaceutical, chemical and medical literature, because it enables the reader to consult the original article when he finds the abstract insufficient.

In Part II the National Formulary and other non-official drugs and chemicals are described on 451 double-column pages. The type in this part is smaller, by which arrangement the reader can at once differentiate between the pharmacopoeial and other drugs. While the limit of the present volume forbids an exhaustive description of all these substances, the subject is treated in an excellent way and the most essential information is given besides the key to the pharmaceutical, chemical and medical literature.

Part III is divided into two sections. The first contains Reagents, Test Solutions and Volumetric Solutions of the U. S. P. and Br. P., Biological Assays, Elements, Pharmacopoeial Chemicals and their Atomic or Molecular Weights, Thermometry, Weights and Measures, Alcohol and Other Tables. Section II contains an abstract of the preparations of N. F. IV, without, however, giving working formulas, according to the agreement with the A. Ph. A. In the opinion of the reviewer, this Section on the N. F. deserves to become Part IV of the "U. S. Dispensatory" and should also be improved by giving the history and uses of the most important galenicals.

The Preface of the work contains: Abbreviations, Table of Abbreviated Tables of Journals and Books, Glossary of Medical Terms, Index of Diseases, The Food and Drugs Act, Food Inspection Decisions, Harrison Narcotic Act and Regulations, and last, but not least, Index to Food and Drugs Act and Harrison Narcotic Law. The publication of these two laws and regulations in this book places same into the hands of pharmacists, wholesale and retail for easy reference. By referring to the special index of these decisions the reader can at once find an abstract, which is a great convenience, as these decisions are not always readily obtainable.

The Index of the "U. S. Dispensatory" occupies 170 pages in 3 columns in small type. The index is a key to a book and Prof. E. Fullerton Cook is to be complimented upon this well-fitting key.

The publishers, the J. B. Lippincott Company, are to be congratulated upon the typography and the make-up of the work. For a book of its size, it is remarkably light in weight and easy to handle, due to the use of light weight, but durable, paper. Much space has been saved by the use of smaller type in Part II, dealing with non-pharmacopoeia drugs. The binding in buckram is very durable and will no doubt last for ten years, when the next, the 21st edition, will be published.

The editors are to be complimented on so worthy a contribution to American pharmaceutical literature. Works of this kind will greatly help to improve American pharmacy and give our brethren across the great pond an idea of "what is doing" in the United States. The book is a wonderful repository of information concerning drugs and medicines, a real encyclopedia of pharmacy, a master work, which will be an everlasting monument to the editor-in-chief, the late Prof. Joseph P. Remington.

Let us hope that the 20th edition of the "U. S. Dispensatory" will be bought and used by pharmacists, druggists and physicians throughout the United States and English-speaking countries. Besides the many advantages already pointed out, this work will be a great help to the retail pharmacist who is daily confronted with numerous problems in the drug business and quite especially behind the prescription counter.

OTTO RAUBENHEIMER.

PUBLICATIONS RECEIVED.

A Guide to the Organic Drugs of the Ninth Revision of the United States Pharmacopoeia, the Third Revision of the National Formulary, a Few of the More Commonly Used Unofficial Drugs, and other Useful Information.—Compiled and arranged by John S. Wright. Revisions and Additions by Francis A. Federer and Harry W. Tuft. Third Revision, with Appendix. 70th Thousand. Prepared for Students of Pharmacy. Published from The Botanical Department by Eli Lilly & Company, Indianapolis, U. S. A. Price, 25 cents. That the copies of this handy guide have been printed to the number indicated is sufficient evidence of its value. The latest edition—just off the press—contains in addition to the

information on the organic drugs of ninth revision of the U. S. P., the same facts concerning the third revision of the National Formulary and the more commonly used unofficial drugs. Included in this vest pocket compendium are a conspectus of plant families, a glossary of botanical and therapeutical terms used and an index of botanical synonyms.

Still another feature of this handy reference booklet is a table of poisons and antidotes, rules for comparing Fahrenheit and Centigrade scales, phrases and abbreviations used in prescription writing, Latin genetive case endings, symbols and signs used in prescriptions, the Metric system of weights and measures and a table of equivalents.

FIND ADULTERATED DRUGS.

DEPARTMENT OF AGRICULTURE INVITES CRITICISM OF PROPOSED RULINGS.

The officials in charge of the enforcement of the Federal Food and Drugs Act have found certain impurities in pennyroyal leaves. In order that the trade may know what the United States Department of Agriculture regards as adulterants of this product it is proposed that a service and regulatory announcement be issued outlining the opinion of the department. Before issuing the announcement, the department desires to obtain the views of the trade or other interested parties as to the fairness of the ruling. Communications should be addressed promptly to the Bureau of Chemistry, Department of Agriculture, Washington, D. C. All criticisms will receive careful consideration. The proposed announcement follows:

"INFERIOR PENNYROYAL LEAVES.—Examination of samples of pennyroyal leaves, *Hedeoma pulegioides* (Linne) Persoon, has disclosed that in a large number of instances, the product has been very carelessly collected and frequently contained very large amounts of sand, stems and other foreign material. From the data at hand, the bureau is of the opinion that properly collected pennyroyal leaves should contain not more than 10 percent of stems, not more than 16 percent of total ash and not more than 6 percent of acid-insoluble ash (sand), and will consider as adulterated, under the Food and Drugs Act, any material which does not comply with these figures. Further investigation may reveal the necessity of establishing a more rigid requirement, in which case due notice will be given."

PULVIS UNNA.

Dr. H. V. Arny states (*C. U. C. P. Alumni Journal*) that by this title, the prescriber undoubtedly means *pulvis fluens hydrargyri*, a powdered form of mercury, made by rubbing mercury with talcum powder and a little oil of turpentine. In another recipe a 30 per cent powder is directed to be made by triturating thirty grams of mercury with five grams of oil of turpentine and fifteen grams of lycopodium until it is extinguished, after which it is diluted with fifty-five grams of powdered wheat starch. For further details, see Year Book of the American Pharmaceutical Association, 1915, page 210; 1916, page 281.

JOURNAL ANNOUNCEMENTS.

Subscriptions: Annual subscriptions in advance, including postage: United States and Mexico, $4.00; Canada, $4.35; foreign countries, $4.50. Single copies, 35 cents. Remittances should be made payable to Treasurer H. M. Whelpley, but mailed to JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, 211 Church St., Easton, Pa., or 253 Bourse Building, Philadelphia, Pa. Under the rules of the Post Office the JOURNAL can be regularly mailed only to bona-fide paid subscribers.

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Further information will gladly be furnished by any of the officers of the Association and members.

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Editor of the Journal—E. G. Eberle, 253 Bourse Bldg., Philadelphia, Pa.
Local Secretary—E. N. Gathercoal, 701 So. Wood St., Chicago, Ill.
Chairman of the Council—Lewis C. Hopp, 1104 Euclid Ave., Cleveland, Ohio.
Secretary of the Council—J. W. England, 415 North Thirty-third St., Philadelphia, Pa.

*Deceased November 19, 1917.